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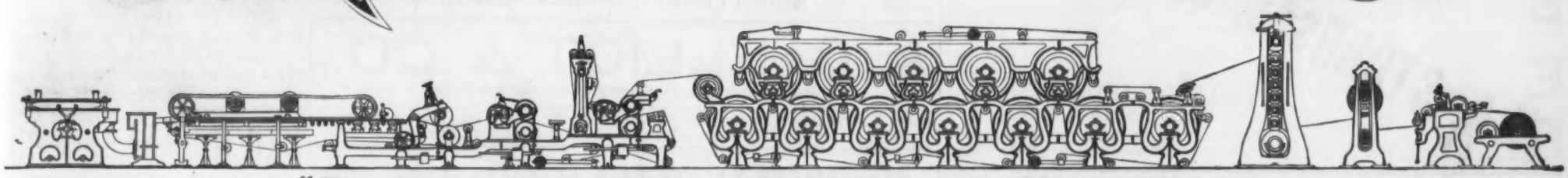

"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXV.—NO. 13. NEW YORK, MARCH 28, 1896. WHOLE NUMBER 1143.

Trade Topics.

Improvement in Drying Apparatus.

The invention herewith illustrated is designed as an improvement in methods for removing the water of condensation from the interiors of the drying cylinders of paper machines, so that the full capacity of each cylinder shall be available for holding steam, the means for the purpose being devised with a view to simplicity, easy application, automatic action, with continuous, practical and efficient operation.

Figure 1 represents a side elevation of that part of the ordinary Fourdrinier paper making machine which comprises a series of drying cylinders, as in combination with the improvement mentioned, parts being shown in vertical section. Fig. 2 represents a sectional elevation taken on the plane indicated by the line 2 2, Fig. 1. Fig. 3 is a horizontal cross-section in detail taken on the line 3 3, Fig. 1. Fig. 4 is a sectional view through one of the journals, and connected parts for one of the drying cylinders. Fig. 5 is a cross-section in detail taken on the line 5 5, Fig. 4.

Each dryer or cylinder, A, has at its end a journal *a*, which is supported in the side standard *b* of the machine, and has coupled thereto a tubular connection, B, having therein two separate passages, *d* and *f*, the one, *d*, of which has free and clear communication with the interior of the rotary dryer A through the tubular journal *a*. The parts *a* and B are so coupled and packed that while the latter is stationary it constitutes no impediment to the free rotation of the journal *a*, and yet the connection is suitably steam tight. The passage *f* has connected to its inner end the tube f^2, which extends through the hollow journal *a* within the cylinder A, and has its inner extremity downwardly turned, terminating near the inner periphery of the dryer, as seen in Fig. 2.

To the outer end of the journal connection B is connected, in communication with the steam passage *d* therethrough, the steam pipe d^2, which also has connection with the larger steam pipe D, which ranges along the side of the machine in common to the several dryers, and having steam connections with all of them through the form of journal connections described for one of the dryers, and thus steam supply pipe D, connected, as described, with the several steam distributing pipes d^2, has a pipe, d^4, leading thereinto from the boiler.

Each double passaged connection, B, has connected to the passage *f* thereof a pipe, *g*, which extends downwardly to connection with the large pipe or conduit G, which ranges alongside of the pipe D. Thus for a set of dryers there are provided in common thereto the two pipes D and G, both having connections through individual branch pipes with the steam and exhaust passages through the journals of the several dryers.

The pipe G, which is closed, except as to the branched pipe connections *g g*, has connected thereto a suction apparatus and a peculiarly combined and arranged outlet conduit for condensation drawn by the suction apparatus from the cylinders into the pipe G and out from the latter into any suitable receptacle or to waste; and there is a suction pipe, *h*, in the form of an inverted U, which has its one end connected to the coupling h^3 and its other vertical limb depending through the closed head of and within a larger vertical pipe, *i*, into which is laterally entered a water supply pipe *j*, the place of entrance of pipe *j* into pipe *i* being somewhat above the lower open end of the smaller pipe *h*. Water under suitable pressure is caused to constantly run from the pipe *j* into and down through the pipe *i*.

From the hollowed coupling h^3 the pipe section h^2 enters through the head or end wall of the large horizontal pipe G, and at the lower end of the coupling h^3 is connected the downwardly extending conduit *m*, which, preferably, has a return bend, as seen at m^2, to constitute a trap or water seal, and with the discharge continuation or passage m^2, which may lead back to the boiler or elsewhere.

The water entered and falling in the pipe *i* causes a suction through the pipe *h* and within the pipe G, the effect of which is to draw through the pipe f^2, passage *f*, and pipe *g* into and through the pipe G water and condensation from the dryer, and this water in passing into the coupler h^3 (at the top of which the suction pipe *h* is entered) will by reason of its gravity fall down in the pipe *m*, the force of the suction or vacuum being insufficient to carry the water up to and across the intermediate horizontal member or back of the return bent suction conduit *h*. In practice there may be to some extent a small proportion of steam not fully condensed, which will be drawn around into the pipe *i*, but this is immaterial.

Other means than those shown may be employed for creating the vacuum or suction effect in an upward direction at the junction of depending conduit *m*, and the branch thereof which leads into the pipe G, and while the particular arrangement of common steam supply pipes, D, with branched steam distributing pipes leading to the several dryer drums, and also of the common large conduit or chamber G with individual branches, *g*, having a siphon-like communication with the lower interior portions of the drums, is shown as advantageous, desirable, efficient, ingenious, novel and valuable, the invention is not limited to this particular arrangement, inasmuch as the gist of it consists in the combination with a drying cylinder of the paper machine having an adequate steam inlet conduit, of an outlet conduit which has a communication through the journal of the dryer with a lower portion of the interior thereof, and which has a connection outside of the dryer with a chamber or passage, connected to the top of which is a suction pipe and to the bottom of which a downwardly directed discharge passage. It is understood that in this machine the steam which is entered in the dryers is at such low pressure as to show practically no pressure at the gauge. Hence there is little or no liability of steam passing with the condensation outwardly from the cylinders through the small siphon-like conduits *f* f^2 *g*, and the undue escape of steam is further prevented by reason of the comparatively small size of the conduits for the condensations, and also by reason of the provision of the water seal or trap at m^2.

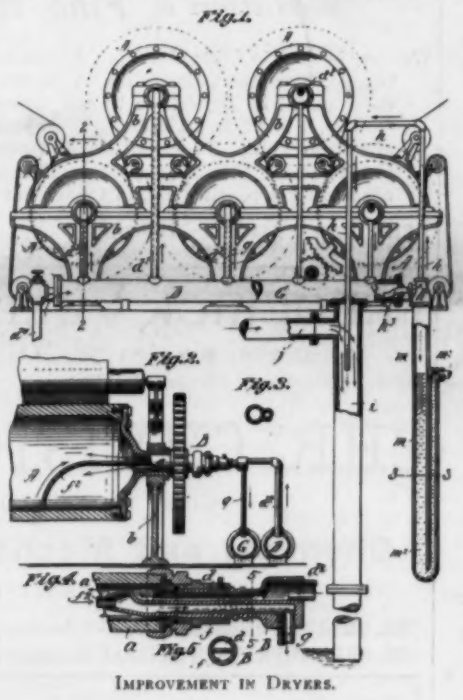

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

IMPROVEMENT IN DRYERS.

Practical Hints and Helps Around the Mill.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY J. F. C.

A great many processes and inventions have from time to time been given to mill owners and mechanics in regard to various methods of strengthening leather belts, covering pulleys and taking care of belting in all of its details, by mechanical journals of every stripe, and no cyclopædia or mill treatise is printed without a large and varied assortment of formulas for cements, gums, &c., for any and every purpose whatever.

Such is the impression which the casual reader will gather on glancing at the book, or a list of its contents; but let the busy mill superintendent who is in need of some special cement or adhesive select one from the numerous list which generally confronts him in such a work and proceed to make and use it, and nine times out of ten the result will be disappointing.

That such is the case the writer has had abundant evidence in the past few weeks, as he has tested a large number of so-called recipes for cements to cement leather to iron, wood, glass, cloth, &c., and found none of them to be of any real practical value. One of them especially, which is copied in nearly all books of recipes alike, is a cement to harden like stone in six hours. The writer has had it carefully compounded and used according to the directions which are given, and since its use, over two weeks ago, it has not set any, nor shown any disposition to harden. The result aimed at was a cement which would unite leather and iron or canvas and iron and produce a satisfactory result, and while none of the stock recipes, so to speak, could be found to fill the bill, the writer has hit upon a cement which does the work in a very satisfactory way. The special aim was to get a cement which would be especially useful to the paper trade, and as there is always plenty of canvas in paper mills which has been used on the dryers, and much of which is nearly as good as new, an effort was made to get a cement which would unite this to iron or other pulleys and produce a permanent covering.

That a covered pulley is desirable goes without saying, experts claiming that it increases adhesion and friction 50 per cent. This means a large saving in the wear of the belt, less slipping, and a generally more even and steadier speed. The cement is composed of the following dissolved ingredients: Good black pitch (wood pitch is preferable, as it is the toughest), 2 pounds; ground glue, 1 pound; linseed oil, 4 ounces; litharge, 2 ounces. Melt the pitch and oil together, and in a separate vessel melt the glue, using just enough water to bring it to a melted state.

This must be done in a regular double glue kettle, else the ingredients will burn and become useless. When thoroughly melted pour the glue into the vessel containing the pitch and oil, and thoroughly incorporate the ingredients. The pitch will not at first readily combine, but half an hour's boiling in a strong, steady heat will make them mix well.

The litharge can then be added and well mixed, and the cement can be thinned down to a proper consistency (that of thin cream) with boiling water, and it will then be ready for use.

Before using the cement the pulley must be cleaned of all dirt and grease and slightly warmed, as this cement sets fast and would be of no use applied to a surface of cold iron. A good way to heat the pulley and clean it at the same time is to swab it with boiling water in which some soda ash or sal soda has been dissolved, or vinegar, benzine or ammonia can be used to clean the pulley, and it may be heated with hot water or by means of lamps set inside of the rim, or gas jets used in the same manner. When washed and cleaned from all grease the pulley must be wiped thoroughly dry with clean rags or waste. In making the cement it is necessary to have it as hot as possible, and when working with it to apply it as quickly as possible. It is advisable, therefore, to put a handful or two of common salt into the water in which the cement pot sets. This increases the boiling point of the water and thus keeps the cement hotter than the common boiling point.

Having your pulley ready and your cement thinned, use a flat, soft brush and quickly paint the surface of the pulley, laying it on as smoothly as possible. It will be of a grayish brown tint at first, which, as it hardens, will assume a dark brown color. Let the coating on the pulley set for an hour at least, or until it is of a dark brown color and seems to be almost hard, when the canvas may be put on. Cut the canvas about half an inch narrower than the pulley and of ample length to go around it. If the piece is an old dryer canvas it will be thoroughly stretched and ready to stay where it is placed without any fear of stretching; but if new it had better be stretched over night by hanging it up somewhere and suspending weights to it.

When ready to put the canvas on make a scraper or stretcher of a strip of wood of the width of your pulley, and then cement about a foot of one end of your canvas, giving it a good heavy coating that it may adhere well in the fibre of the cloth, and lay it on the pulley, leaving an even margin on each side; then rub down with the scraper, getting the canvas down flat and hard. Proceed in this way, cementing only about a foot at a time until the pulley has been circled; then cut off the end to form an even butt, and finish by cementing a strip of thin cloth across the seam.

Don't put a second coat on the pulley when putting on the canvas, as the cement on the canvas adheres to the cemented surface of the pulley perfectly. The outside of the canvas can then receive the finishing coat. Put this on evenly and smoothly, and especially fill in well around the outside edges. In a few hours' time your pulley will show a hard, shining, smooth surface, which has all of the elements and qualities requisite to a good driving surface and which, if put on carefully and well, will stay on as if it had grown there. A second coating on the outside may be given to make a superior job, or if the pulley is to be enlarged or built up to a higher or lower speed it may be done by putting several thicknesses of canvas over the first, letting each outside coat harden for an hour before applying another, and letting the finished cover harden for five or six hours, or over night, before putting the belt on.

Rosin may be substituted for the pitch or mixed with it in case of necessity, but the pitch will make the more tenacious cement.

Leather may be used for a covering with this cement, but should be thin and soft, so that it may the more easily hug the pulley. In the same way paper may be used as a cover, covering the pulley with the pitch preparation first, then applying the paper over that, using a thin cement of common glue, with a proportion of glycerine in it to prevent it from becoming too brittle, and winding the paper around in one strip.

The application of two good heavy coats of cement alone forms a good working covering for the pulley and will prevent slipping and greatly add to the efficiency of the pulley.

A pulley covered by this method with canvas has all of the elasticity of a good leather covering at much less cost. It will adhere to the pulley better than most other coverings, and its surface being as smooth as the iron it has the best adhesive qualities, and with a leather or rubber belt its frictional power is not excelled by any other pulley cover.

If you have a belt which is inclined to run off the pulley on one side or the other through any defect or crook in your belt or from lack of crown on pulley, you can cement a leader on it with this cement. First cement a strip 3 inches wide around the centre of this, 1 inch or 1½ inch in width, and finish with one or two coats of cement the same as for a cover. As a saving of time the narrow strip can be sewed on the 3 inch strip and the leader can be cemented on at one operation.

Repair Shop Equipment.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY W. H. WESTON.

In equipping a machine shop for repair work in a mill an assortment of tools which will enable the work to be done in good shape and as quickly as possible is desirable. In case of a breakdown in a mill, so that any part of its machinery is stopped, it will ordinarily be a very expensive thing, unless there is an equipment at hand which will enable the repairs to be quickly made. A few hundred dollars invested in the tools of a repair department may save as many thousand dollars very easily.

One objectionable feature of the repair department in a paper mill is that it is very often crowded into a room not half large enough for a common hencoop. Again, ten chances to one it is located either in a cellar where dampness and want of light make the place objectionable, or it is up near the roof where the machines have no sort of foundation to hold them, and they shake themselves to pieces and never do satisfactory work, for no machine tools of ordinary weight can do justice to themselves when set on floors which spring and tremble beneath them.

The idea seems to prevail with a good many managers of mills that a repair department is of little consequence and that it can be crowded into any place where the room is not wanted for other purposes, and it it happens afterward that this room is wanted the repair shop has to move out to some other and poorer place. If there is not a room of ample size in a mill, it is better to put up a building at one side of the mill and as handy to it as possible. In this way ample space can be had for the work, and the great advantage of having the machines set on solid foundations is also secured. The shop is thus entirely separate from the mill and will not interfere with any of the other departments, as may be the case if it is located in the mill building.

Sometimes when an industry is first started there is ample space in the main building for the machine shop; but as the business increases the room occupied by the shop is needed for mill uses. In such instances it is far better to build a shop outside than to try to chase the repair department around from one part of the mill to another, as is often done.

It is not usually necessary to have a very large area for repair work—that is, compared with other areas. Therefore a building of brick, or even of wood, is not an expensive affair at all, and it is often cheaper than to give up space in the mill which could be used to much advantage for manufacturing purposes. It is often of importance to have a forge in connection with the repair shop, and for this purpose a building outside of the mill is an advantage, for in this way the smoke from the forge does not reach the other departments, and danger of fire from such a source is avoided. If it is necessary to increase the size of the repair shop, an addition can readily be put on to such a building whenever needed.

In equipping a machine shop it is not only necessary to supply the proper machines, but it is also important to secure ample bench service with plenty of good vises; also sufficient clear floor area for use in setting up any machinery which may be constructed. There should be also ample space for the storage of a stock of steel and

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iron and for old scrap which may be used over again.

If the department is of much size it is very necessary to have a tool room where all small tools can be stored, such as a supply of files and chisels of all kinds, taps, reamers, drills, mandrels, gauges, templets, levels, straight edges, wrenches, &c. All small tools after being used should be promptly returned to their proper place, and thus everything will be kept strictly in order. The lathes should be of the very best, and the number supplied and their sizes must of course be settled in accordance with the size of the mill and the sort of machinery which is run. In repair shops of moderate size it is not usually necessary to have more than one planer; but it is important to have this tool of sufficient size to do any work which the mill may require. Small work may be done on a large planer, but heavy work cannot be done on a small one.

It is very necessary that a planer of any size shall have a solid foundation, and it should be so located in the shop that work can be readily swung on and off the platten without interfering with anything. The planer should be heavy in the bed uprights and platen castings. Some planers are entirely too light to do good work or to stand any amount of work. The cross beam should be heavy and have a large area of bearing surface on the ways of the uprights and should be raised by power; vertical, horizontal and angular feeds should all be automatic: all feed gearing should be perfectly cut and the gearing of the platen should be of steel.

It is much better to have too many than too few drill presses, as it is expensive to have work waiting, as is sometimes the case when there is no drill press which is not in use in the shop. If it is likely that there will be large, heavy pieces to be drilled it is important to have one radial drill in the shop, although it is perhaps rather exceptional should one of these be required for any ordinary mill repairs. In any kind of a drill press the pillar should be very heavy, and there should be a long range of feeds. The gearing should be of ample proportions to be strong and to run smoothly and uniformly. There should be a boring bar equipment to at least one of the presses. A small speed lathe for drilling small pieces should always be supplied.

There are many small shops where it is perhaps not necessary to supply a milling machine, but in most shops of any size it is of much advantage to have a good machine of this description, because there is much work which can be done more readily and much better on a milling machine than on a shaper or planer. There may be also some repairs which cannot be done in a shop unless there is a milling machine to do them. It is usually advisable to have a "universal" in preference to a plane milling machine, and a good supply of fixtures and cutters should be had. In this way gears can readily be cut for any mill machinery and much work of importance can be done.

Emery wheels are an important adjunct, and coarse and fine grindstones are indispensable to a properly equipped shop. No tools can do good work if they are not kept perfectly sharp and in the best condition.

The best way to haul a fire when you have an accident is not to haul it at all, but to throw some wet ashes or green coal over it, close the ash pit doors and leave the fire door wide open. If you go to stirring the fire up and hauling it you will simply increase the heat just when you don't want to.

Correspondence.

MIAMI VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, March 26, 1896.

Signs of approaching spring, such as blizzards, snow storms, cold, raw March winds, &c., ad infinitum, the infallible harbingers, are at hand. But business has not improved.

Orders are small, but they are thankfully received nevertheless. One manufacturer who has been growling about the weather for a month is delighted because March 21—the advent of spring—is in the misty past. Since the sun has crossed the equator he feels a trifle better, and predicts a grand rush in advance of the advertised time.

The weather in this latitude is peculiarly in a class of its own and is entitled to the biscuit for downright deceptiveness. Its delusions are grotesque and displeasing. One day the sun sends a generous warmth throughout terrestrial surroundings and all is gladness and song, the feathered songsters adding their mellow toned pæans of thanksgiving. Men walk about the streets in their shirt sleeves, truly appreciative of the fact that Dayton is the Riviera of America. But, oh, what a difference in the morning! Snow laden streets and housetops, ice covered maples and cedars, with a liberal mixture of the purest quintessence of slush known to geologists on terra firma, are with us to remain until the sun sets. Then we enjoy a passing tornado, a little ice cream soda, and await developments. But the performance is continuous and the cruel inconsistency of things continues. Such is life where variety is the spice thereof.

The edict has gone forth, and the splendid mills of the White Paper Company will be sold at an early date. The advertised time, I believe, is Tuesday, April 21, 1896. Oscar M. Gottschall, receiver and special master commissioner, will consequently be a busy man from this date, as it is understood that a quiet move is on foot to arouse an interest throughout the trade and attract a large number of bidders thither for the event. To those who have kept well posted it seems like a "cut and dried" affair, inasmuch as ex-Receiver Hoffman holds the balance of power with a $150,000 mortgage.

Altogether seventeen lots in Browntown upon which the plant is located are included in the sale, besides the following described personal property of the company:

All of its paper machines, calenders, Jordan engines, steam engines, boilers and appurtenances, beating engines, washing engines, paper cutting machines, rag cutting machines, rag dusting machines, rag whippers, rotary boilers, hydraulic presses, pipe cutting machines, emery knife grinders, grindstones, circular lumber saws and tables, trucks, ruling machines, paper cutters, wire stitching machines, cornering machines, perforating machines, eyelet machines, stripping machines, gluing machines, sewing machines, book presses, printing presses, imposing stones, metal type cutting machines, furniture racks, type, drying racks, galley racks, type racks and cases, electrotypes, reglet cases, heaters, condensers, steam pumps, injectors, steam piping, fire extinguishing appliances, electric light plant (except the dynamo), wires, lamps and appurtenances, lathes and repairing tools, shafting, belting, pulleys, hangers, elevators, steam heating appliances and all other property, real, personal and mixed, of whatever description and wherever situated, with all and singular the privileges and appurtenances thereto belonging, and whether now held or hereafter acquired by it, together with all the rents, issues, profits, income, privileges and franchises growing out of or appertaining to said property (the above described property is covered by the mortgage of the Union Savings Bank and Trust Company) and all other real and personal property now in the hands of the receiver.

All sales of personal property separate from the plant, real estate, machinery, tools, fixtures and furniture shall be for cash. The real estate and machinery mentioned in the foregoing are the properties covered by the mortgage and will be offered as a whole, and an itemized schedule of the property will be made before the sale for the general benefit of prospective buyers.

As is usual in such cases, no bid upon the plant will be received or considered by the receiver unless the bidder shall have deposited in cash, or certified check, payable on demand, the sum of $5 000 as the customary pledge and security. If the machinery and real estate are sold as an entirety (that part covered by the mortgage), the terms shall be one-third cash, one-third on or before two years, and the deferred payments to be secured by mortgage upon the premises, with sufficient and satisfactory insurance upon the complete plant for the benefit of the trust represented by the special master commissioner.

For the benefit of the outside trade it should be mentioned that the real estate has been appraised at $52,732; machinery, tools, fixtures and furniture, at $55.915.06; total, $108 647.06.

McMahon & McMahon and Gunckel, Rowe & Shuey, two of the oldest law firms in the city, have charge of the sale in conjunction with Receiver Gottschall.

The latter official has just filed another monthly report. One statement shows a net profit of $8,200.19 for three months. The total sales since the last regular report were $14,141.84. Since the receivers assumed charge, the sales have aggregated $56,347.16. It will be recalled that the paper concern went into insolvency during the early part of December. Certainly not a bad showing for the company.

The court has ordered the receiver to expend a sufficient amount of money for materials for a specified time in order that operations may continue until the date of sale.

Here is a most important decision, which can but interest, for the personal interests of many out of town people are involved. In the case of the First National Bank of Lockland, Ohio, *v.* Charles F. Gunckel, ex-president of the Middletown Paper Company, *et al.*, the court finds that the net value of the property transferred to the above mentioned paper concern by Mr. Gunckel and Paul J. Sorg, November 12, 1883, was $70,613, and that the property was transferred to the corporation at the value of $94,500; that the defendants, P. J. Sorg, C. F. Gunckel and James M. Johnson severally subscribed for 195 shares of stock of said corporation and did not pay therefor the full par value, but that each paid only $14,650.35, and that there remains due from each the sum of $4,849.65, with 6 per cent. from January 27, 1894; that plaintiff and other creditors of the defendant corporation are entitled to recover judgment against each of said parties, Messrs. Sorg, Gunckel and Johnson, for that sum, with interest.

The court further found that Messrs. Johnson and Gunckel are insolvent, and that payments of the amounts found due cannot be enforced by execution. The Middletown Paper Company is also insolvent and it is decided by the court that an assessment of 100 per cent. upon the stockholders of said corporation is necessary. Thus the assessments are ordered and the referee's report confirmed. H. H. Haines, as receiver, is authorized to collect the money and distribute it. Notice of appeal was at once given and the bond fixed at $500.

John Cape, an employee of the Champion Coated Paper Company, of Hamilton, who was injured some time ago in an explosion, has brought suit against that company for $2,000 damages. He alleges that while in the discharge of his duty as fireman he was about to shovel coal into the furnace and one of the boiler flues exploded, causing a scatterment of steam, hot water and flames, to his bodily injury, without fault or negligence on his part whatever. The plaintiff claims that the explosion was caused by the defectiveness and insufficiency of the flues.

He further avers that he was knocked insensible, and remained so for a period of about thirty days; that his right eye became blind, and remained so for ten days; that his face, neck, left leg and hands were scalded, and that he suffered great mental and bodily pain. For all these physical ills and perturbation of mind, and for loss of work, he asks the substantial sum of $2,000.

M. V.

FOX RIVER VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., March 24, 1896.

The paper business generally in this valley still continues somewhat lifeless, and no tonic features are as yet in sight. Some of the manufacturers report a fairly good trade, but as a whole things are quite unsatisfactory.

There is quite a little expectancy in water power matters on the river as the time approaches when the Government says that the water in the lake must be at the crest of the Menasha dam. This date is fixed for April 15. The lake must rise about 14 inches in order to bring it up to this required level, and not very much time is left for it to do so. In fact it is something of a question whether, with the present amount of water going into the lake, the required rise could be obtained if a complete shutdown were inaugurated at once. Of course with these conditions generally known there has been considerable talk about a shutdown, and it was rumored this morning that an order to this effect had been received by the manufacturers. The rumor, however, proved to be untrue, but it would not be at all surprising if such an order were forthcoming soon, although there has been no definite announcement of it. If such a shutdown should come it would not close the mills, as all of them, since last summer's experience, have provided themselves with steam engines, and are in a position to make their regular product by steam if they cannot do so by water power.

It is reported that more protests are going in to Washington directed against the proposed legislation to allow flush boards upon the Menasha dam. This time they come from a group of farmers residing along the lake shore, who fear that their lands would be damaged by high water. The ridiculous character of the claim is apparent when it is known that the Government years ago paid ten times the value of the land for overflow damages, and now holds title to lands for such purposes if it sees fit.

There is nothing new to report about the new water power company proposed to be organized at Neenah and Menasha. It is understood that at present the greatest difficulty is being found in getting the money that would be necessary for the manufacturers to go into the scheme. Everybody seems to be favorably disposed toward the enterprise, but there is no doubt that it is languishing on account of the unfavorable conditions.

It is reported that the new Grand Rapids Paper and Pulp Company will put in steam engines for running its paper machines. There is expected to be sufficient water power, but it is thought that a better quality of paper can be made. Just at present water power on the Wisconsin River is at rather a low ebb. The output of ground wood has been considerably reduced, and steam is generally being used for paper making.

O'Keefe & Orbison are working upon the detailed plans for the new mill of the John Edwards Manufacturing Company, at Port Edwards, which was described last week, and preparations are being made to commence building operations within a few days.

The water power case which has been referred to in these columns several times in the past, involving interests at Kaukauna, has just been decided. According to a decision of the Superior Court at Milwaukee, the Green Bay and Mississippi Canal Company was compelled to return to the river immediately below the dam at Kaukauna the water that it took from the river above the dam, in order that it might flow down the river along and in front of the property where it was accustomed to flow before the dam was built. From this decision the Canal Company appealed to the Supreme Court, and the appeal has just been dismissed, so that the original decision stands and is in force. As the Canal Company manifestly cannot comply with the terms of the decision, it is hoped in Kaukauna that this will afford a basis for a compromise, whereby it will be possible for the Kaukauna Water Power Company to derive some benefit by a division of the water of the river.

At the Appleton Wire Works the boiler and engine are in position and one of the looms is in place. Some of the machinery coming from the East went astray, or else the plant by this time would have been in a position to go into operation. The delay, however, will not be great.

The amounts of taxes which the Menasha paper manufacturers have refused to pay are as follows: Gilbert Paper Company, $2,884; Paul Paper Company, $1,228; Strange Paper Company, $1,153. The attorneys for the paper companies will commence an action restraining the county treasurer from selling and the county clerk from issuing tax deeds upon their property, claiming that the property is assessed too high in comparison with other property in Menasha.

The Nodaway Boat Club has elected the following officers for the ensuing year: Commodore, Jas. C. Kimberly; vice-commodore, Jas. Wright; secretary and treasurer, E. P. Sherry: regatta committee, W Z. Stuart, J. L. Pinkerton and Jas. Wright. During the winter now past the club took a great interest in ice boating, and succeeded in winning the challenge cup offered by the *Evening Wisconsin* of Milwaukee.

C. G. Morrison, who has been superintending a paper mill near the city of Mexico for

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the last six months, has returned to his home in Kaukauna.

Some of the steam boilers at the mills of the Kimberly & Clark Company in this city are being overhauled and repaired.

Superintendent Peter Thom, of the Kimberly & Clark Company, departed this morning for the East, where he will visit some of the paper making districts for the next ten days.

William Van Nortwick, of Batavia, Ill., was in the valley on business last week.

FOX RIVER.

BOSTON.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
64 Federal Street,
BOSTON, March 26, 1896.

Concerning business in local trade circles very little of an encouraging nature comes to notice.

Everybody tells the same story and it is short—business is dull.

Taking that statement as a text a column might be written, but the unfavorable conditions existing in general business throughout the country would not be changed. That commercial conditions and the industrial status will in time improve for the better is, of course, to be admitted; but when will this hoped for change come to pass? Until general business improves the paper trade will continue to be quiet.

Calling at the office of the Bangor Pulp and Paper Company in the John Hancock Building, the writer found the treasurer, C. W. Walcott, busily at work. In response to inquiry, Mr. Walcott stated that a statement of the company's affairs was being prepared and that he hoped to have everything tabulated by the end of the month, when the statement would be sent to the assignees at Portland, Me. The rooms now occupied by the company in the Hancock Building will be vacated during the coming week. A reorganization of the company is talked of as among the probabilities, but upon what basis is not yet known, although those directly interested may be formulating some plan.

The George W. Wheelwright Paper Company will remove its Boston office on April 1 to rooms in the New York Mutual Life Insurance Building, No. 95 Milk street.

Col. E. H. Haskell is in Washington this week as one of the delegates representing the Boston Paper Trade Association to escort the members of the Congressional committee on rivers and harbors, who are now en route to this city. This committee will visit Boston to inquire into the needs of the harbor, with the view of its improvement by the Government. The committee is expected to reach here on Saturday, and during its stay will be guests of the city. J. Richard Carter is one of the entertainment committee. A banquet will be tendered the visiting Congressmen at the Algonquin Club, on which occasion the Boston Paper Trade Association will be represented by Col. E. H. Haskell, ex-President J. Richard Carter and Secretary James B. Forsyth.

Boston is preparing for a horse show, and that interests quite a number of the paper trade. Charles M. Bryant, of the A. Storrs & Bement Company, has entered three polo ponies, and they do say that Mr. Bryant has the best string of polo ponies in the country. R. C. McQuillen, of the same firm, has entered his chestnut cob Jessie. "Rob" is something of a horseman himself, and takes much pride in horseflesh, although he does not hanker after the sports of the polo field. It is a little early yet to mention all of the paper trade interested in this horse show, but there is little doubt that the list will include the greater part of the city trade. They will all be there.

The value of the exports of books and paper from this port for the week ended March 20 is stated to be: Books, $1,139; paper, $1,164.

As the first of April draws near, the prospects of a fishing trip to Maine are being discussed and fishing parties are being arranged by several of the paper trade. To the sportsmen of the trade it might be of interest to know that the Bangor and Aroostook Railroad has issued a neat brochure of particular interest to the devotees of the rod and gun, in which are given the locations where game is most abundant, and any quantity of other tips necessary for the sportsman to know. As the line of the road runs contiguous to many of the well-known "gamy" resorts in the Maine woods, a heavy passenger traffic may be looked for at the opening of the fishing season, April 1.

Among the visitors from Maine this week were Stanton Day, of Solon, and Chas. H. Milliken, of Mechanic Falls.

From New Hampshire came Frank P. Carpenter and S. T. Coy, of Manchester; W. A. Whitney, of Sunapee, and Eugene Daniell, of Franklin.

Other trade representatives reported were: Benj. M. Jackson, of Pawtucket, R. I.; Charles S. Mayo, of Lawrence, Mass.; Fred Temple, of East Pepperell, Mass.; Mr. Williams, of Worcester, Mass.; Geo. K. Baird and Mr. Campbell, of Lee, Mass.; W. L. Daniels, of Adams, Mass.; Franklin Weston, of Dalton, Mass.; Herbert I. Wallace, of Fitchburg, Mass.; Frank H. Whittlesey, of Windsor Locks, Conn.; T. E. Barnes, of Plantsville, Conn.; Edward Wilson, of Rainbow, Conn.; W. D. Judd, A. H. Hill and Mr. Jolly, of Holyoke, Mass.; Frank Farrell, of Philadelphia, and Henry Atterbury, of New York.

Mr. Tate, a paper manufacturer, of Scotland, under the guidance of Mr. Jolly, of Holyoke, was doing Boston this week.

Since writing paper and pads have taken the place of slates in the Boston public schools the consumption of paper in the schools has largely increased, 100 tons having been used last year. It is said that this year's consumption will be much larger.

DELESDERNIER.

PHILADELPHIA.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., March 25, 1896.

Prices are too low, gentlemen. Paper should bring more good money at the mill. Even grinding water is expensive to the miller, especially if it happens to get bad and spoils a vat of pulp. The condition of feeling, at least among some of the mill men, is that a higher scale of prices must be brought about for the maintenance of the manufacturer. No matter how this low ebb of prices may have attained, it is now time for it to be changed to a flow which will give the mills a chance to keep above the water. For if the paper is not manufactured how can it be sold? All dealers are as interested as the paper maker. The story of the surgical operation which was an eminent success but killed the patient is an illustration of what low prices may do for the manufacturer. The party who buys the product cheap from the dealer is eminently satisfied, but what about the patient manufacturer? Where does wear and tear come in? It doesn't come in just now.

The recent heavy rains in this locality have caused a discoloration of the water in the Schuylkill River to such an extent that those mills depending upon it for water have been obliged to close down as a consequence. Coal dust and mud, in large quantities, are not conducive to the best results in the making of Philadelphia grades of paper; not depreciating the value of clay either.

The fire in the plant of the Pennsylvania Salt Manufacturing Company, of Philadelphia, which occurred at Natrona, near Pittsburg, Pa., last Saturday, was serious and very remarkable. The smelting plant, which was destroyed, was at the east end of the works, directly adjoining the other buildings, all of which cover about 60 acres of land. The wind happened to be in a direction opposite to the other buildings, a circumstance which doubtless saved a much heavier, if indeed not a total, loss of the entire plant. As it was, the destruction of the smelting plant, which covered about 4 acres, in no way interferes with the usual operation of the balance of the works. Austin M. Purver, treasurer of the Pennsylvania Salt Manufacturing Company, in speaking of the fire to-day, said that the loss was entirely covered by insurance; that the company would not be greatly inconvenienced in any way, and that the reports contained in last Sunday's papers to the effect that $1,000,000 loss was sustained was greatly exaggerated; that the damage was only about $100,000. The company is doing a nice business. Its chemical department is not disturbed. Paper trade interests will be served as usual.

The following telegram comes from Cape May, dated March 21, with the announcement that salt water grass will not make paper: "The attempt to make good paper out of the pulp of salt meadow grass has proved a failure. The mill established at Eldora, on East Creek, on the Delaware, was closed about six months ago. Sheriff Tomlin has levied on the plant to satisfy a claim of $9,000 held against it by George W. Brietensheets, of Philadelphia."

A. S. Buchanan, of Garrett & Buchanan, 5 Decatur street, has been confined to his home at Norristown with la grippe since last Thursday and is not expected at the store this week.

Announcement has just been received here of the failure of J. C. Addison, 627 Louisiana avenue, N. W., Washington, D. C., dealer in paper and stationery. Assignment was made to Wm. H. Sholes and J. Geo. Smith—all proceeds for the benefit of creditors.

Stock of stationery valued at.....	$22,833.40
Bills receivable and outstanding.	14,612.21
Total.....	$37,445.61
Liabilities.....	37,909.32

Among the creditors are quite a number of Philadelphia houses; how well they are protected I have not been able to learn today.

A. L. Steelman has resigned the vice-presidency, of and severed his connection with the F. E. Okie Company, manufacturer of printing ink, and has connected himself with the firm of Chas. Eneu Johnson & Co., of Philadelphia, conducting a like business.

The duplex plaster board, manufactured by C. S. Garrett & Son, 12 and 14 Decatur street, is unique in its way, and is enjoying a nice sale. It takes the place of plaster, has a tinted surface, making a finish to a room at once, and is so durable as to be painted or papered over as many times as desired. William Garrett, of this company, is now in the South on a short pleasure trip.

Philadelphia has been highly favored during the past two weeks. The following named well-known hustling representatives of the trade have peeped in and shook hands all around: B. B. Anderson, Perfect Safety Paper Company, Franklin, Ohio; Mr. Post, of the Hurlbut Paper Company, South Lee, Mass.; Mr. Campbell, of Eaton, May & Robbins, Lee, Mass.; Mr. Judd, of the Wauregan Paper Company, Holyoke, Mass.; Mr. Westervelt, the Big Island Paper Company, Big Island, Va.; Jas. A. Steese, the Mount Holly Paper Company, Mount Holly Springs, Pa.; Mr. Coolidge, of the Lake George Paper Company, Ticonderoga, N. Y.; Mr. Hardy, of the Castleton Paper Company, Castleton, N. Y.; Mr. Cantine, of the Martin Cantine Company, Saugerties, N. Y.; Mr. Wiswall, of the Waits River Paper Company, Bradford, Vt.; Mr. Butler, of the Smith Paper Company, Lee, Mass.; Mr. Belden, representing Frank Whittlesey, of Windsor Locks, Conn.; Mr. Temple, of the Pepperell Card Company, East Pepperell, Mass.; Mr. Ramage, of the Ramage Paper Company, Monroe Bridge, Mass.; Mr. Russell, of the Russell Paper Company, Boston, Mass.; Mr. Flint, of H. C. Hulbert & Co., New York; Mr. Webster, of the Eastern Manufacturing Company, Bangor, Me.; E. C. Wilson, of the Springfield Paper Company, Rainbow, Conn.

Business in rag and paper stock lines is confined in volume, manufacturers buying only for actual requirements. Quotations are as follows: No. 1 whites, 2¾@2⅞c.; No. 2 whites, 2⅛@2¼c.; blues and thirds, 1⅛@1¼c.; colors free of black, ¾c.; blacks, ¼c.; hard white shavings, 2¼@2⅜c.; soft, 1½@1⅝c.; No. 2 white, ⅞@1c.; mixed, ⅞c.; book stock, ⅞@1c.; manillas, ¾@⅞c.

In chemical lines business is dull and there is little that is new. Mr. Bannister, of the United Alkali Company, made us a visit this week and looked as genial and robust as ever. Bleach yet shows a weak tendency; quotations on spot bring 1¾@1.80c.; 48 per cent. caustic soda ash, 1⅛@1½c.; 58 per cent. alkali, .95c. for 48 per cent.

RETLAW.

NORTHERN NEW YORK.

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., March 25, 1896.

Between talk on the Raines bill, the McKinley boom, politics in general and a large sized twenty-four hour blizzard which tied up railroads, street car lines and hindered trade, the paper men of the Black River Valley have kept themselves pretty busy. The blizzard was the surprise party of the lot. It came in a night, but its effects are rapidly disappearing. The general thaw which is now on will fill the Black River pretty full, and as is usual there will be considerable trouble from the large quantity of floating débris which is brought down and gets into the water wheels. It will pay all of the mill men to put a man on to specially watch their flumes and clean out the racks every few moments. Tanbark and driftwood are the most troublesome.

The Taggarts Paper Company has awarded a contract to Scudder Todd for the delivery of its pulp wood prior to September 1, 1896. Mr. Todd is the agent of the Lyon estate. He gave a bond for the faithful performance of the contract, E. F. Bermingham, of the Dexter Sulphite Pulp and Paper Company, going his surety. This will naturally seem strange when it is known that the Taggarts and the Dexter Sulphite people are in litigation over their rights to cut wood and drive it down the lake and creek. However, Mr. Todd will so arrange matters, it is thought, as to prevent any conflict between the two companies.

The Taggarts Paper Company reports a very busy time. Colored poster paper is a specialty with it just at present.

The case of the Saranac Land and Timber Company against State Comptroller Roberts, in which Smith M. Weed and others, of Plattsburg, are interested, to get possession of the land from the State, was on in the United States Court at Utica last week and adjourned to March 30.

W. E. T.

HOLYOKE.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 26, 1896.

There are very few new developments in the affairs of the Albion Paper Company. The ten days in which the creditors' committee was to run the mill expire to-day, but the next meeting of the creditors has not been called and the committee is not ready to make its report.

Several meetings of the committee have been held this week and it was expected that something definite would be arrived at before this, but nothing decisive has occurred. E. M. Estes, formerly chief bookkeeper at the Holyoke Envelope Works, has been employed as an expert to examine the company's books, and he finds that A. H Page's report at the Springfield meeting was practically correct. He also finds that the earnings of the company during the past ten years or more have been very gratifying, and that the books bear out most of the statements as to the satisfactory showing made to the creditors recently.

The directors of the company held a meeting a few days ago and elected William Reardon, the superintendent of the mill, a director to succeed Mrs. Taft, of Worcester, the latter never having qualified. At the meeting of the committee yesterday afternoon, Judge Forbes, of Worcester, representing Mrs. Taft, was present. The matter of a reorganization of the company with the Tafts retaining an interest was discussed, but no definite action was taken.

The opinion that the company will be reorganized on a substantial basis seems to be gaining ground, and it would really be the best thing that could happen. This would necessitate an increase in the stock, and in addition to this bonds could be issued to secure the creditors who do not care to become stockholders. The property is altogether too valuable to remain idle long, and there are quite a number of shrewd manufacturers who would like to get control of it.

Considerable sympathy is expressed for William Reardon, to whom it is understood the company owes $16,000. Mr. Reardon, in addition to his regular salary, had a certain percentage of the profits, and he allowed the latter to accumulate instead of withdrawing it. The mill owes much of its reputation to Mr. Reardon's good judgment and skill as a manufacturer, and it is hoped that he will not be obliged to lose the amount due to him.

The condition of trade has not improved any during the week drawing to a close, and it cannot be said that it is any worse than it has been of late. The volume of trade has on the whole been pretty even, and some mills are quite well supplied with orders. The accumulation of finished goods goes on quietly, but this is kept in check as far as possible. Prices have not undergone any marked change, and none are predicted for the near future.

Quiet reigns in the stock market. The dealers say that they are doing very little, being obliged to put up with small orders, and not many of them. Foreign rags are not in demand and domestics are not moving very freely. Prices have not changed.

Chemicals are exceedingly quiet, without any change in prices. The call for bleach is very limited and there is little doing in sodas or alkali.

The Carew Manufacturing Company, South Hadley Falls, has made this return to the State authorities: Fixed capital, $35,000; capital paid in, $35,000. Assets—Real estate, $56,000; land and water power, $6.000; buildings, $20,625; machinery, $40,000; cash and debts receivable, $126,634; manufactures and merchandise, $99,720; total, $348,979. Liabilities—Capital stock, $35,000; debts, $143 368; reserve for depreciation, $170,611; total, $348,979.

The Whiting Paper Company will soon add to its equipment at the No. 1 mill a Harris-Corliss engine of 175 horse power. The engine has a 16 foot fly wheel with a 44 inch face, and weighs about 35 tons. It will occupy a building which has recently been constructed.

Arthur G. Holman, traveling salesman for the Hampshire Paper Company, who has been very ill for a number of months, expects to resume his occupation on April 1.

The Massasoit Paper Manufacturing Company now uses a portion of the Whitcomb building on Front street for the storage of its finished paper.

James Cowan, the local job printer, will enter the employ of the Milton Bradley

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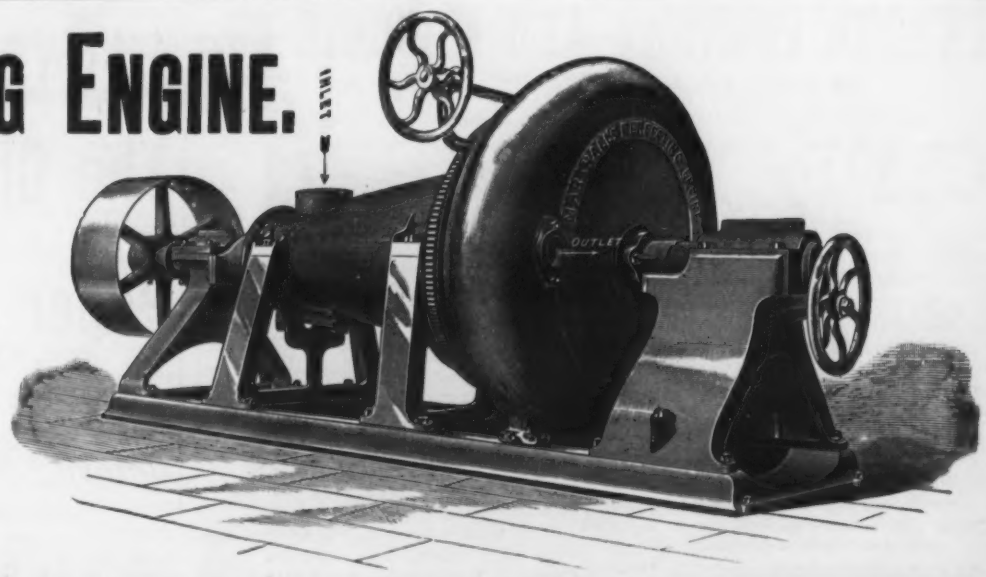

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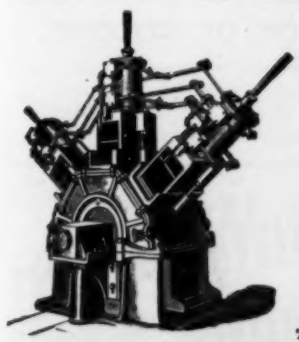

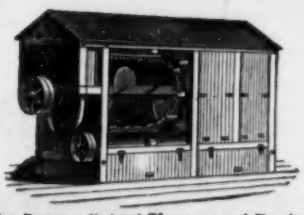

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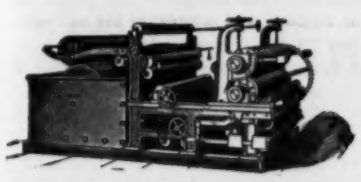

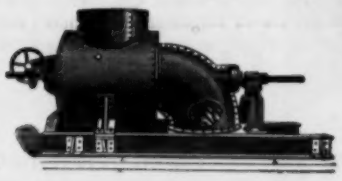

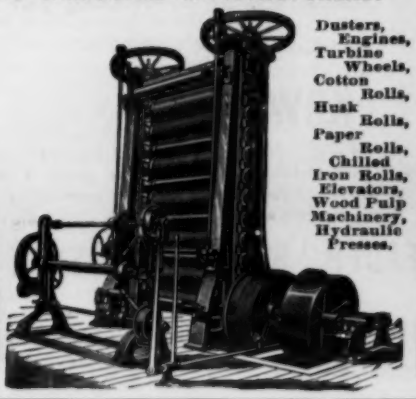

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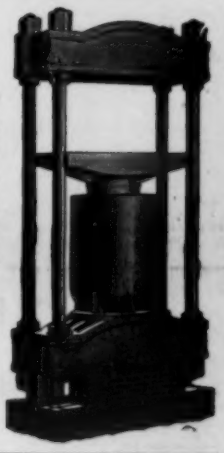

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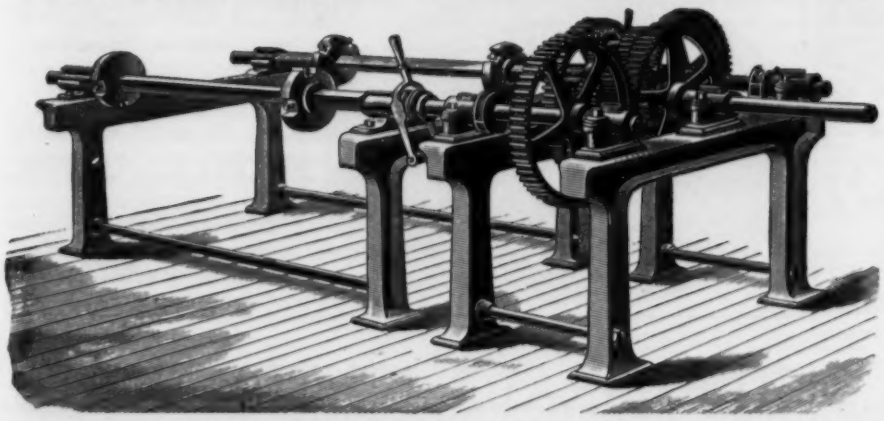

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That every ***New England Pulp Grinder*** ever made or sold in this country has been designed, built, and first sold by me; and I am sole owner of the right to use the name "New England" as applied to a pulp grinder, as the United States Patent Office records will show, and no other person is or has ever been interested with me in the manufacture of Pulp Machinery.

All the rights and interest of the Scott & Roberts Company and the New England Pulp Machine Company which were organized for the purpose of selling my pulp machinery were acquired by me more than four years ago, since which time many changes and improvements have been made in the New England Pulp Grinder.

I am prepared to furnish at short notice everything required for making ground wood pulp, including plans and specifications, and estimates for which I will furnish same; and erect the whole, if required, ***guaranteeing a greater production of pulp,*** with a given power and at a less cost for manufacture, than can be done by any other machines; and no pay asked until machines perform as stipulated.

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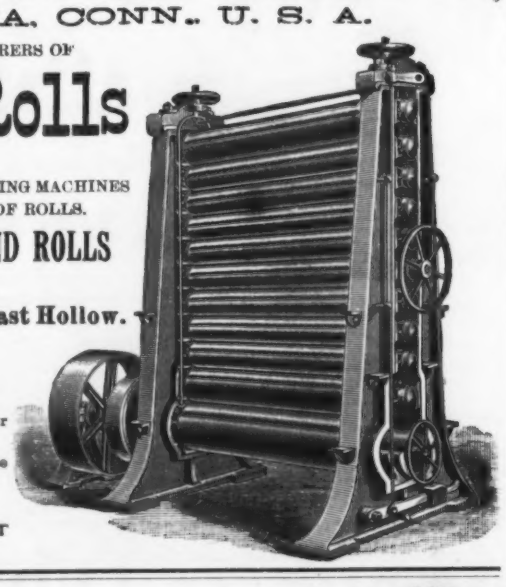

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Housings so made that the rolls may be taken out endwise through frame.

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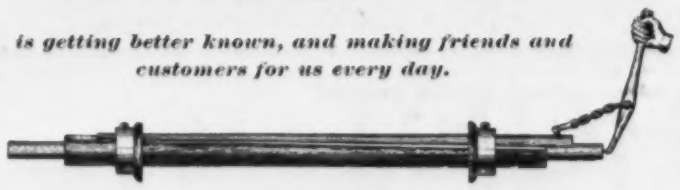

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Cliff Paper Co., Niagara Falls, N. Y.
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Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y.
Wagman, Thorpe & Co., Fort Miller, N. Y.
Munroe Felt and Paper Co., Lawrence, Mass.
Lake George Paper and Pulp Co., 3 Shafts, Ticonderoga, N. Y.
Samuel Cupples Paper Bag Co., St. Louis, Mo.
Springfield Paper Co., Rainbow, Conn.
Bangor Pulp and Paper Co., Orono, Me.
Moore & White Co., 2 Shafts, Philadelphia, Pa.
Hon. George West, 12 Shafts, Baliston Spa, N. Y.
M. & W. H. Nixon Paper Co., 5 Shafts, Philadelphia, Pa.
Allen Bros. Co., 4 Shafts, Sandy Hill, N. Y.
Hollingsworth & Whitney Co., 2 Shafts, Boston, Mass.
Pusey & Jones Co., 3 Shafts, Wilmington, Del.
Seymour Paper Co., Windsor Locks, Conn.
Orrs & Co., 2 Shafts, Troy, N. Y.
Thompson P. & P. Co., 2 Shafts, Schuylerville, N. Y.
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CONTENTS.

INTRODUCTION.

General Laws of Chemistry; Principles of Chemical Physics; Chemical Arithmetic.

PART I.

General Chemistry.—With a short account of each element and its principal compounds; source, manufacture and properties of such compounds as are used in paper making.

PART II.

CHAPTER I.—**Cellulose.** Its chemical and physical properties, chemical relations and reactions.

CHAPTER II.—**Fibres.** Cellulose in its relations to the plant, the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres; growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Rosin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

CHAPTER X.—**Electro-Chemistry,** with reference to bleaching, manufacturing of pulp, manufacturing of chlorine and soda.

APPENDIX.—Metric system; tables of specific gravities; strength of solutions; list of sulphite patents, &c

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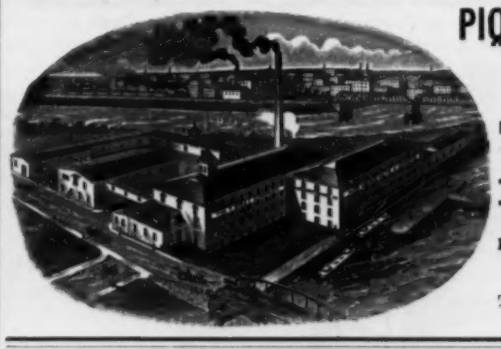

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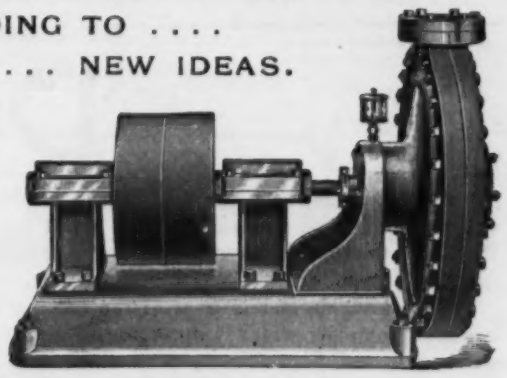

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Machinery is universally used by the manufacturers of above goods in the United States and Canada.

Company at Springfield, about April 1, and will have charge of its publishing and advertising departments. Mr. Cowen has also written a book entitled "Daybreak: A Romance of An Old World."

C. H. Davenport, representing the Powers Paper Company, has just returned from a three months' business trip which has covered a large portion of the country.

W. F. Bradley, formerly with E. W. McClintock, the local stock dealer, has accepted a position with a Brooklyn house in the same line, and will soon leave the city. Mr. Bradley has many warm friends here who will regret his departure.

E. A. McPhee and L. E. Shattuck, two young men connected with the Springfield *Union*, will soon begin the publication of a weekly newspaper at Chicopee. It will be known as the Chicopee *Herald*.

C. H. Davenport, Jr., for the past five years traveling salesman for the Valley Paper Company, has accepted a similar position with the J. W. Butler Paper Company, of Chicago, with headquarters at Minneapolis, Minn. H.

WESTERN NEW YORK.

[FROM OUR REGULAR CORRESPONDENT.]

NIAGARA FALLS, N. Y., March 24, 1896.

THE PAPER TRADE JOURNAL correspondent has had an interview with James Davy, the Thorold, Ont., pulp manufacturer, concerning the latest news in regard to the proposed export duty on pulp wood. Mr. Davy said that the Canadian paper and pulp manufacturers were by no means idle in regard to the matter, although it was doubtful if they could induce the Government to do anything before another election, which will undoubtedly take place this spring. In fact, the present Canadian Government is in a very shaky position, and will have to go to the people for another indorsement shortly. The trade in Canada, however, feel, so Mr. Davy says, that eventually they will receive recognition from the Government and secure the export duty asked for. The Canadians believe that this will develop the pulp business in their country to a considerable extent.

The Niagara Falls Paper Company is preparing to increase the capacity of its plant. General Manager J. C. Morgan has been East looking into different kinds of machinery and settling upon what he wants in the big mill. A contract has been made with R. D. Wood & Co., of Philadelphia, for three more 1,300 horse power inverted Guyelin-Jonval turbines of the same pattern as those put in before.

The construction of the entire sulphite plant, as decided by the company, was let to one concern, and this will take all responsibility off the paper company's hands. Friend & Stebbins, of West Carleton, Ohio, were the successful bidders, and secured the contract. This provides for a 25 ton mill, and work will begin just as soon as the frost is out of the ground.

There will be some extensive operations at the Falls this spring which will dwarf into insignificance any power developments elsewhere. The Niagara Falls Power Company will also extend its wheelpit to provide for the installation of three more 5,000 horse power turbines each and 5,000 horse power electric generators. Then the Niagara Falls Hydraulic Power and Manufacturing Company is busy with its new electric power house in the gorge of the river, where it will put in a number of the James Leffel & Co.'s celebrated wheels to generate electric power.

Since paper has jumped into popular favor for interlinings in ladies' sleeves and dresses, under the name of sponge crepon, fibre chamois and other similar fancy names, new companies with new names have been coming up all over the country. Niagara Falls is not behind in the procession and for some time past a company has been established here and has been turning out what is called textile buckskin interlining. The firm is known as Jones & Co., of Niagara Falls, N. Y., and Toronto, Canada. The company is incorporated in Canada with a capital of $50,000, and is composed of W. H. Jones, of Toronto, A. E. Jones, of Niagara Falls, and J. H. Dignan, also of Toronto. The plant here is busy night and day and the material turned out is very creditable stuff, finding a ready market and meeting with favor.

As everyone knows, "sponge crepon," which is world wide in its fame, is made at Lockport, and has achieved a reputation on two continents of which the originator, the Niagara Paper Company, may justly feel proud.

I visited the Niagara Paper Company's mill the other day. This mill, so the trade knows, makes the "Defender" paper for covers and fancy stock. I saw the machines turning off one order of 3 tons for one man and at a good many cents per pound at that. I was glad to note it, for Messrs. Howes, Merritt and Ryan deserve all of the good luck which can come to mortals, for they are hard workers.

W. E. T.

WASHINGTON.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 26, 1896.

The Commissioner of Internal Revenue is inviting sealed proposals until April 22, 1896, for furnishing the office with such paper, to be used for the printing of the United States internal revenue stamps during the fiscal year ending June 30, 1897, as may be ordered from time to time.

The specifications for the paper this year are somewhat different from those in use during previous years, and are as follows:

The paper must, in respect to composition, sizing, strength and calendering, be equal to the samples of the paper now used in the printing of internal revenue stamps, which are to be found for examination at the office of the Commissioner of Internal Revenue, the degree of sizing, calendering and strength to be such as may be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, and must be free from clay or other adulterations, thread knots, grit or other foreign substances. A proportion of chemically prepared wood fibre, not exceeding 40 per cent., will be permitted in the composition. Each sheet of paper shall be made distinctive by being closely watermarked with the letters "U. S. I. R.," in such manner that each square inch of the sheet shall bear some portion thereof.

The quantity required under the contract contemplated will be about 800,000 pounds, and will be white, plain green or such other color not more expensive as may at any time be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, but the coloring material used must not be such as to be injurious to persons handling the paper.

The paper is to be manufactured and delivered in such quantities and in sheets of such sizes and weights as the office may from time to time order, and must be counted, examined and separated into lots of 1,000 sheets, each hundred to be separated by a paper tag, and each lot tied with strong twine.

The paper is to be manufactured under the supervision of an agent of the Government, who shall have access to all departments of the mill where the special paper is being manufactured, and under the protection of guards to be stationed at the mill; and the contractor will be required to provide without charge, in the building in which the paper is made, rooms suitably furnished, to be used as an office by such agent and for the persons designated to guard the paper delivered, and also a room in which to store it until shipped; and he will be further required to conform to such reasonable regulation as may be made by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, to prevent the improper removal from the mill of the paper manufactured under the contract. All paper will be receipted for by the agent at the mill, subject to future examination, and the contractor will be required to furnish perfect paper with which to replace any returned to him as defective.

The contractor will be required to sign a written contract and to begin the manufacture of the paper at such time after June 30, 1896, as the Commissioner of Internal Revenue shall designate, and shall also be required to enter into a bond in the sum of $10,000, with approved sureties, for the faithful execution of the contract. The contract will bind the contractor to manufacture the special paper for the United States only.

Bills accruing under the contract will be paid monthly.

Bidders will state in their proposals the price or prices per pound for the paper, deliverable at the Treasury Department, in the city of Washington, District of Columbia, securely packed in the presence and under the direction of the agent of the department stationed at the mill, in wooden boxes strapped with iron, sealed and marked ready for shipment, all at the expense of the contractor; and it is expressly stipulated that in case it shall be at any time necessary, in the opinion of the Commissioner of Internal Revenue, to require shipment of paper by express instead of by the ordinary freight delivery, the Government shall not be responsible for the cost of transportation except to the extent of the ascertained difference between the express rate and the rates by freight.

All paper returned from the department to the contractor as defective, for which he is required, as hereinbefore stated, to furnish paper to replace the same, shall be returned at the expense of the contractor, and the paper furnished in place thereof shall be delivered at his expense at the Treasury Department.

The contractor will be required to furnish new dandy rolls for watermarking the paper, unless those owned by the Government can be used, and will be required to pay all expenses connected with the repairing of such dandy rolls from time to time as necessity may require. Such rolls shall be manufactured and repaired, if necessary, under the supervision of an agent of the Government, and will become and remain the property of the United States.

Each proposal shall be accompanied by a written guaranty, signed by two responsible persons, that if the award is made to the proponent of the contract a bond will be executed promptly on the making of the award.

Bids will not be considered unless made by persons actually engaged in the manufacture of paper, and bidders are required to deposit with their bids samples of the paper which they propose to furnish—made with special reference to the character and quality of paper required to be supplied by the terms as mentioned above—at the price or prices bid, which samples will be subjected to the usual tests as to strength and quality. No samples of paper now in use will be sent out by the bureau for examination. A. F. T.

New Inventions—XCVIII.

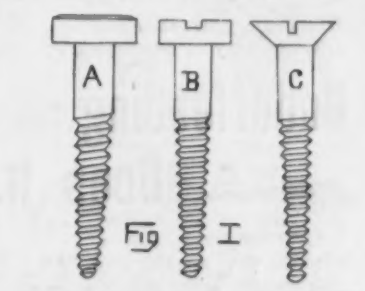
[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY GEO. DAMON RICE.

Recently compiled statistics for the year ended December 31, 1895, show that there has been a falling off in the consumption of wood screws. Why this should be, when about every other article of merchandise presents an increase, may be a matter worthy of brief thought. Fewer wood screws have been used since 1885 than in years previous. One reason for this is that modern methods of manufacture in woodworking lines, such as dovetailing of parts and the employment of patent fastenings, do away with the need of screws. Then wire nails, bolts and kindred articles have substituted the wood screw in many processes of manufacture. The falling off in ship building in this country has also helped to diminish the total consumption of wood screws. Furthermore, the extensive adoption of labor saving machinery for cutting out sections of building timbers results in more uniform construction of the framework, thereby doing away with many attaching screws and bolts which were formerly necessary.

Various metals, paper, fibre and the like have been manufactured into devices to take the place of wood screws, all of which tend to reduce the consumption of a type of screw which ten years ago was almost indispensable in some lines of manufacture. Wood screws have done effective service for many years. They are light, strong, durable and possess many of the requirements of a good and efficient fastening device. Specimens of wharf timbers, taken from a harbor in which the wharf had been subjected to wet, cold, ice and salt water for many years, were recently examined and the screws which held the timber joints in place were found intact, while the timber itself was nearly gone. Some timbers attached to the piles in the same wharf structure with bolts were similarly examined, and the rust generated in years by the iron had rotted out the interior of the bolt hole, and the working of the bolt had aided to enlarge the crevice, so that the entire combination was loose and about ready to fall to pieces.

This matter of a bolt rusting itself loose, like D in Fig. II., is of course detrimental.



WOOD PULP SCREWS.

Wire nails, or in fact any sort of nails, will also develop rust in damp places. Of course there is a certain stage in the rusting process during which it tightens the bolt or nail in place. Makers of wire nails roughen the surface sometimes so as to afford a grip to the wood, but it has been proved that this weakens the nail. A point in favor of the wire nail is that it can be driven into the wood at an angle, which increases the grip about a third. Ordinarily a wood screw will take too firm a grip upon the wood, which is a drawback, as it may be desired to remove it some time. The curvatures of the thread on the screw set firmly into those of the timber, and when an attempt is made to remove the screw, as in Fig. II., the head E is likely to snap off at G, leaving the lower part imbedded. Besides, a common wood screw has a tendency to warp out of line, to splinter, crack, break, &c. Believing, however, that the principle of having wood against wood, and having discovered a number of points in favor of making screws from wood pulp, interested parties have undertaken to experiment on this line, with the result that some fairly good samples of wood pulp screws have been produced, views of which are given in Fig. I.

In this figure it will be observed that the threads of the screws are alike, while A has a square head, adaptable for a wrench, B a combination head, adaptable for both a wrench and a screw driver and C a screw driver head. The screws are cast and the thread is cut as in the common wood screw, except the drive screw, which is exhibited in Fig. II. and marked F. This screw is cast with the extenuated thread curves, so that when driven it revolves and finds a firm footing in the fibre of the wood. It can be driven only into soft woods and a hole is first started.

The operation of making these screws from wood pulp is carried out on somewhat peculiar lines. Unbleached pine has been used thus far, although it is evident that any of the woods are available. Some china clay, alkali, sal soda and glue stock are added to the mass of pulp. Finally ground bone, mixed freely with tanners' grease, is combined with the varnish, and about 10 pounds are put into a 250 pound tank of the pulp. A lubricant for the fibre is found in the use of a gallon of hard oil. Water and fire proofing chemicals can be added at this stage if desired. The casting of the mixture into variously shaped screws is now done, after which the threads are cut. The casting molds have to be constructed on the condensing principle. They decrease in size about a third as the pulp dries, thus compressing the fibre compactly. After cutting the threads the wood preserving process is applied, consisting of putting the screws into a tank containing a solution of sulphate of copper, which gradually works its way into the fibre, and when dry the screws are thoroughly permeated with the preserving chemical.

The screws are rather harsh and dry now, and are rendered smooth and finished with an oil varnish. The screws thus made are tough, elastic and valuable for use in many places. For ornamental work, or to represent highly polished wood, a liquid dye is applied to the square heads, and in such way that a semblance to a grain wood is obtained or any color. A varnish on top of this adds to the effect and protects the dye, the latter being preferred to paint, as it penetrates the fibre and is lasting. It has been estimated that these wood pulp screws can be made so cheaply as to successfully compete with screws and lag bolts of other types. A feature is that the screws can be removed readily, even after they have been set for a lengthy period.

The Government as a Publisher.

The Government of the United States is the greatest publisher in the world, and, whether considered as to their matter or their form, its books are, as a whole, poorer stuff than those on which any great publishing house puts its imprint. No one has attempted to estimate how much it costs the Government to be in the publishing business, and very few people know how grossly the printing and publishing facilities of the Government are abused. Provision for payment of work done by the Public Printer is scattered all through the appropriation bills and appears in the most unexpected places. A paper recently read on the Tehuantepec Railroad before the National Geographical Society in Washington was ordered printed at the Government expense, and it has come to this that any society having a charter from Congress claims and is accorded the right to have its publications issued from the Government Printing Office. One of the numerous societies of Sons or Daughters of the Revolution has already enjoyed this privilege, and as, including the societies of the descendants of the participants in the war of 1812, there are probably a score of such associations, the prospect of a large increase of public printing from this source seems to be exceedingly good.

As a fair sample, neither of the best nor the worst, of what is done under cover of the printing privilege, take the Year Book of the Department of Agriculture, for which an appropriation of $300,000 was inserted in the Urgency Deficiency bill the other day. It was explained by a Democratic member of the Appropriations Committee that in the last session of Congress an appropriation was made for printing the Agricultural Report for 1894, and there was no estimate made to that Congress for printing the report for 1895. He added: "This is the first time, with the exception of one other instance some years ago, where a Congress has failed to make any appropriation at all for the purpose, where we will have two appropriations for printing two Agricultural reports at the same session of Congress. The reason for this appropriation is that it will enable the Public Printer to get out the Agricultural report for 1895 about the month of June, instead of in October or November. I therefore concur in it, although it is not properly a deficiency appropriation."

Now, in point of fact, in the book thus provided for the report of the department bears the smallest possible relation to its total contents. The report is reproduced in the Year Book merely as a matter of form, having already been published as a part of the message and documents communicated to the two houses of Congress. We have not seen any table of the contents of the Year Book for 1895, whose publication both houses and both parties deem "urgent," but it is fair to assume that they are of a character similar to those of the book of 1894. The latter consisted of 580 octavo pages of reading matter, of which the report of the Secretary occupied fifty-eight pages. The remaining 522 pages are occupied by a series of papers from authors more or less competent, on subjects by no means without interest, but for the treatment of which there can be no possible reason why there should exist so-called scientific bureaus maintained at the expense of the United States, and for the publication of which there is as little reason why the people of the United States should be taxed. Here we touch a new ramification of the abuse of the Government intrusion into a sphere where it has no concern, but the position of the Government as a publisher necessarily involves a reference to the fact that it incurs a very large annual expense for the payment of its authors.

In the book before us we have an elaborate paper on "Education and Research in Agriculture in the United States," by the Director of the Office of Experiment Stations; another on "Soils in their Relations to Crop Production," by the Chief of the Division of Agricultural Soils; a third on "Water as a Factor in the Growth of Plants," by the Chief and Assistant Chief of the Division of Vegetable Pathology; a fourth on "Mineral Phosphates as Fertilizers," by the Chemist of the Department; a fifth on "The Geographic Distribution of Animals and Plants in North America," by the Chief of the Division of Ornithology and Mammalogy; a sixth on "Hawks and Owls as Related to the Farmer," by one of the Assistant Ornithologists, and a seventh on "The Crow Blackbirds and their Food," by another; and so on, with papers from the Entomologist, the Assistant Entomologist, the attachés of the Bureau of Animal Industry and the Division of Botany, not to mention the Agrostologist, the Chief of the Division of Forestry, and certain special agents and corresponding college professors. The papers, presumably, represent what their authors deem the most valuable results of a year's labors, which it is not necessary to assume have been deficient either in diligence or value.

On the printing, presswork, paper and binding of 500,000 copies of this book, the Government spends $300,000 a year—a sum, it may be remarked, greatly in excess of the amount for which it could be produced by any private printing establishment. The cost of distribution does not appear in the appropriation, that being one of the indirect charges on the Post Office Department which prevents the people from getting cheaper postage. Assuming that it is a book which ought to be in the house of every farmer in the land, the Government evidently does too little, for 500,000 copies are merely enough to establish, as in the cognate business of seed distribution, a system of gross favoritism. If, however, as seems to be the fact, the book is one chiefly fitted for the perusal of men who bring to farming a high degree of education and a certain amount of opulence, the Government is simply engaged in an unfair competition with the regular publisher of books on scientific agriculture, and that for the benefit of people who are abundantly able to pay for such literature. If these papers have any intrinsic value they would as readily find a publisher as a body of readers able and willing to pay for them. Be the results of the Government work in this field as excellent as possible they necessarily tend to lower the value of the work of private investigators, because they can be obtained for nothing.

But, whatever their utility or value, there is no more reason why the Government should publish scientific handbooks for the farmer at the public expense than that it should publish manuals for the weaver, the iron founder, or the machinist. The Year Book of the Department of Agriculture is merely one of scores of more or less costly publications which go to swell to positively stupendous dimensions the

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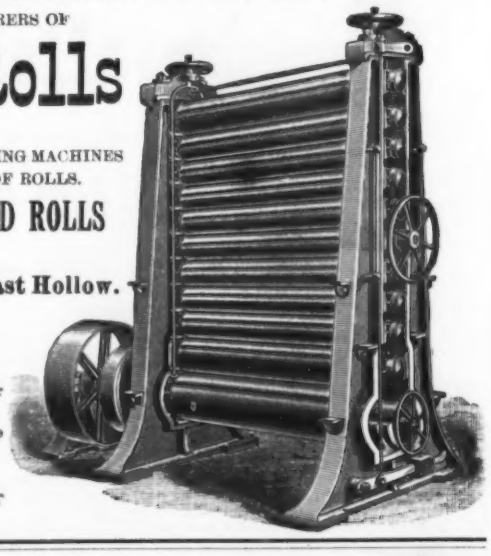

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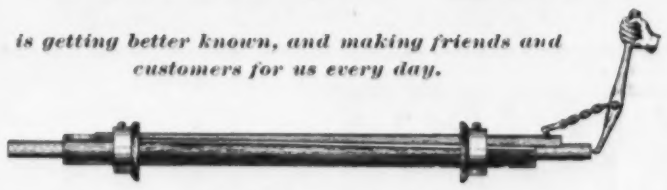

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CHAPTER II.—**Fibres.** Cellulose in its relations to the plant, the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres: growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

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CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

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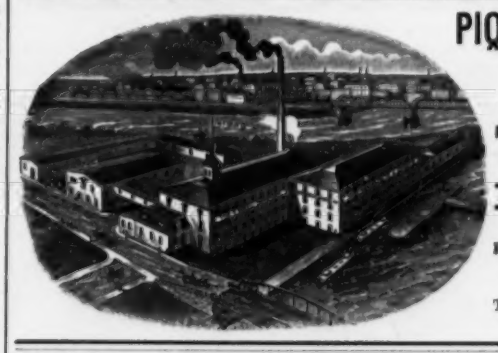

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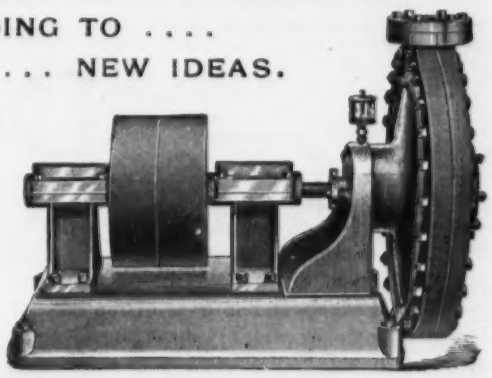

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Company at Springfield, about April 1, and will have charge of its publishing and advertising departments. Mr. Cowen has also written a book entitled "Daybreak: A Romance of An Old World."

C. H. Davenport, representing the Powers Paper Company, has just returned from a three months' business trip which has covered a large portion of the country.

W. F. Bradley, formerly with E. W. McClintock, the local stock dealer, has accepted a position with a Brooklyn house in the same line, and will soon leave the city. Mr. Bradley has many warm friends here who will regret his departure.

E. A. McPhee and L. E. Shattuck, two young men connected with the Springfield *Union*, will soon begin the publication of a weekly newspaper at Chicopee. It will be known as the Chicopee *Herald*.

C. H. Davenport, Jr., for the past five years traveling salesman for the Valley Paper Company, has accepted a similar position with the J. W. Butler Paper Company, of Chicago, with headquarters at Minneapolis, Minn. H.

WESTERN NEW YORK.

[FROM OUR REGULAR CORRESPONDENT.]

NIAGARA FALLS, N. Y., March 24, 1896.

THE PAPER TRADE JOURNAL correspondent has had an interview with James Davy, the Thorold, Ont., pulp manufacturer, concerning the latest news in regard to the proposed export duty on pulp wood. Mr. Davy said that the Canadian paper and pulp manufacturers were by no means idle in regard to the matter, although it was doubtful if they could induce the Government to do anything before another election, which will undoubtedly take place this spring. In fact, the present Canadian Government is in a very shaky position, and will have to go to the people for another indorsement shortly. The trade in Canada, however, feel, so Mr. Davy says, that eventually they will receive recognition from the Government and secure the export duty asked for. The Canadians believe that this will develop the pulp business in their country to a considerable extent.

The Niagara Falls Paper Company is preparing to increase the capacity of its plant. General Manager J. C. Morgan has been East looking into different kinds of machinery and settling upon what he wants in the big mill. A contract has been made with R. D. Wood & Co., of Philadelphia, for three more 1,300 horse power inverted Guyelin-Jonval turbines of the same pattern as those put in before.

The construction of the entire sulphite plant, as decided by the company, was let to one concern, and this will take all responsibility off the paper company's hands. Friend & Stebbins, of West Carleton, Ohio, were the successful bidders, and secured the contract. This provides for a 25 ton mill, and work will begin just as soon as the frost is out of the ground.

There will be some extensive operations at the Falls this spring which will dwarf into insignificance any power developments elsewhere. The Niagara Falls Power Company will also extend its wheelpit to provide for the installation of three more 5,000 horse power turbines each and 5,000 horse power electric generators. Then the Niagara Falls Hydraulic Power and Manufacturing Company is busy with its new electric power house in the gorge of the river, where it will put in a number of the James Leffel & Co.'s celebrated wheels to generate electric power.

Since paper has jumped into popular favor for interlinings in ladies' sleeves and dresses, under the name of sponge crepon, fibre chamois and other similar fancy names, new companies with new names have been coming up all over the country. Niagara Falls is not behind in the procession and for some time past a company has been established here and has been turning out what is called textile buckskin interlining. The firm is known as Jones & Co., of Niagara Falls, N. Y., and Toronto, Canada. The company is incorporated in Canada with a capital of $50,000, and is composed of W. H. Jones, of Toronto, A. E. Jones, of Niagara Falls, and J. H. Dignan, also of Toronto. The plant here is busy night and day and the material turned out is very creditable stuff, finding a ready market and meeting with favor.

As everyone knows, "sponge crepon," which is world wide in its fame, is made at Lockport, and has achieved a reputation on two continents of which the originator, the Niagara Paper Company, may justly feel proud.

I visited the Niagara Paper Company's mill the other day. This mill, so the trade knows, makes the "Defender" paper for covers and fancy stock. I saw the machines turning off one order of 3 tons for one man and at a good many cents per pound at that. I was glad to note it, for Messrs. Howes, Merritt and Ryan deserve all of the good luck which can come to mortals, for they are hard workers.

W. E. T.

WASHINGTON.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 26, 1896.

The Commissioner of Internal Revenue is inviting sealed proposals until April 22, 1896, for furnishing the office with such paper, to be used for the printing of the United States internal revenue stamps during the fiscal year ending June 30, 1897, as may be ordered from time to time.

The specifications for the paper this year are somewhat different from those in use during previous years, and are as follows:

The paper must, in respect to composition, sizing, strength and calendering, be equal to the samples of the paper now used in the printing of internal revenue stamps, which are to be found for examination at the office of the Commissioner of Internal Revenue, the degree of sizing, calendering and strength to be such as may be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, and must be free from clay or other adulterations, thread knots, grit or other foreign substances. A proportion of chemically prepared wood fibre, not exceeding 40 per cent., will be permitted in the composition. Each sheet of paper shall be made distinctive by being closely watermarked with the letters "U. S. I. R.," in such manner that each square inch of the sheet shall bear some portion thereof.

The quantity required under the contract contemplated will be about 800,000 pounds, and will be white, plain green or such other color not more expensive as may at any time be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, but the coloring material used must not be such as to be injurious to persons handling the paper.

The paper is to be manufactured and delivered in such quantities and in sheets of such sizes and weights as the office may from time to time order, and must be counted, examined and separated into lots of 1,000 sheets, each hundred to be separated by a paper tag, and each lot tied with strong twine.

The paper is to be manufactured under the supervision of an agent of the Government, who shall have access to all departments of the mill where the special paper is being manufactured, and under the protection of guards to be stationed at the mill; and the contractor will be required to provide without charge, in the building in which the paper is made, rooms suitably furnished, to be used as an office by such agent and for the persons designated to guard the paper delivered, and also a room in which to store it until shipped; and he will be further required to conform to such reasonable regulation as may be made by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, to prevent the improper removal from the mill of the paper manufactured under the contract. All paper will be receipted for by the agent at the mill, subject to future examination, and the contractor will be required to furnish perfect paper with which to replace any returned to him as defective.

The contractor will be required to sign a written contract and to begin the manufacture of the paper at such time after June 30, 1896, as the Commissioner of Internal Revenue shall designate, and shall also be required to enter into a bond in the sum of $10,000, with approved sureties, for the faithful execution of the contract. The contract will bind the contractor to manufacture the special paper for the United States only.

Bills accruing under the contract will be paid monthly.

Bidders will state in their proposals the price or prices per pound for the paper, deliverable at the Treasury Department, in the city of Washington, District of Columbia, securely packed in the presence and under the direction of the agent of the department stationed at the mill, in wooden boxes strapped with iron, sealed and marked ready for shipment, all at the expense of the contractor; and it is expressly stipulated that in case it shall be at any time necessary, in the opinion of the Commissioner of Internal Revenue, to require shipment of paper by express instead of by the ordinary freight delivery, the Government shall not be responsible for the cost of transportation except to the extent of the ascertained difference between the express rate and the rates by freight.

All paper returned from the department to the contractor as defective, for which he is required, as hereinbefore stated, to furnish paper to replace the same, shall be returned at the expense of the contractor, and the paper furnished in place thereof shall be delivered at his expense at the Treasury Department.

The contractor will be required to furnish new dandy rolls for watermarking the paper, unless those owned by the Government can be used, and will be required to pay all expenses connected with the repairing of such dandy rolls from time to time as necessity may require. Such rolls shall be manufactured and repaired, if necessary, under the supervision of an agent of the Government, and will become and remain the property of the United States.

Each proposal shall be accompanied by a written guaranty, signed by two responsible persons, that if the award is made to the proponent of the contract a bond will be executed promptly on the making of the award.

Bids will not be considered unless made by persons actually engaged in the manufacture of paper, and bidders are required to deposit with their bids samples of the paper which they propose to furnish—made with special reference to the character and quality of paper required to be supplied by the terms as mentioned above—at the price or prices bid, which samples will be subjected to the usual tests as to strength and quality. No samples of paper now in use will be sent out by the bureau for examination. A. F. T.

New Inventions—XCVIII.

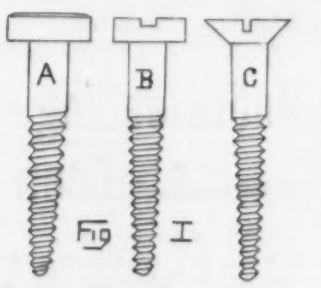
[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY GEO. DAMON RICE.

Recently compiled statistics for the year ended December 31, 1895, show that there has been a falling off in the consumption of wood screws. Why this should be, when about every other article of merchandise presents an increase, may be a matter worthy of brief thought. Fewer wood screws have been used since 1885 than in years previous. One reason for this is that modern methods of manufacture in woodworking lines, such as dovetailing of parts and the employment of patent fastenings, do away with the need of screws. Then wire nails, bolts and kindred articles have substituted the wood screw in many processes of manufacture. The falling off in ship building in this country has also helped to diminish the total consumption of wood screws. Furthermore, the extensive adoption of labor saving machinery for cutting out sections of building timbers results in more uniform construction of the framework, thereby doing away with many attaching screws and bolts which were formerly necessary.

Various metals, paper, fibre and the like have been manufactured into devices to take the place of wood screws, all of which tend to reduce the consumption of a type of screw which ten years ago was almost indispensable in some lines of manufacture. Wood screws have done effective service for many years. They are light, strong, durable and possess many of the requirements of a good and efficient fastening device. Specimens of wharf timbers, taken from a harbor in which the wharf had been subjected to wet, cold, ice and salt water for many years, were recently examined and the screws which held the timber joints in place were found intact, while the timber itself was nearly gone. Some timbers attached to the piles in the same wharf structure with bolts were similarly examined, and the rust generated in years by the iron had rotted out the interior of the bolt hole, and the working of the bolt had aided to enlarge the crevice, so that the entire combination was loose and about ready to fall to pieces.

This matter of a bolt rusting itself loose, like D in Fig. II., is of course detrimental.



WOOD PULP SCREWS.

Wire nails, or in fact any sort of nails, will also develop rust in damp places. Of course there is a certain stage in the rusting process during which it tightens the bolt or nail in place. Makers of wire nails roughen the surface sometimes so as to afford a grip to the wood, but it has been proved that this weakens the nail. A point in favor of the wire nail is that it can be driven into the wood at an angle, which increases the grip about a third. Ordinarily a wood screw will take too firm a grip upon the wood, which is a drawback, as it may be desired to remove it some time. The curvatures of the thread on the screw set firmly into those of the timber, and when an attempt is made to remove the screw, as in Fig. II., the head E is likely to snap off at G, leaving the lower part imbedded. Besides, a common wood screw has a tendency to warp out of line, to splinter, crack, break, &c. Believing, however, that the principle of having wood against wood, and having discovered a number of points in favor of making screws from wood pulp, interested parties have undertaken to experiment on this line, with the result that some fairly good samples of wood pulp screws have been produced, views of which are given in Fig. I.

In this figure it will be observed that the threads of the screws are alike, while A has a square head, adaptable for a wrench, B a combination head, adaptable for both a wrench and a screw driver and C a screw driver head. The screws are cast and the thread is cut as in the common wood screw, except the drive screw, which is exhibited in Fig. II. and marked F. This screw is cast with the extenuated thread curves, so that when driven it revolves and finds a firm footing in the fibre of the wood. It can be driven only into soft woods and a hole is first started.

The operation of making these screws from wood pulp is carried out on somewhat peculiar lines. Unbleached pine has been used thus far, although it is evident that any of the woods are available. Some china clay, alkali, sal soda and glue stock are added to the mass of pulp. Finally ground bone, mixed freely with tanners' grease, is combined with the varnish, and about 10 pounds are put into a 250 pound tank of the pulp. A lubricant for the fibre is found in the use of a gallon of hard oil. Water and fire proofing chemicals can be added at this stage if desired. The casting of the mixture into variously shaped screws is now done, after which the threads are cut. The casting molds have to be constructed on the condensing principle. They decrease in size about a third as the pulp dries, thus compressing the fibre compactly. After cutting the threads the wood preserving process is applied, consisting of putting the screws into a tank containing a solution of sulphate of copper, which gradually works its way into the fibre, and when dry the screws are thoroughly permeated with the preserving chemical.

The screws are rather harsh and dry now, and are rendered smooth and finished with an oil varnish. The screws thus made are tough, elastic and valuable for use in many places. For ornamental work, or to represent highly polished wood, a liquid dye is applied to the square heads, and in such way that a semblance to a grain wood is obtained or any color. A varnish on top of this adds to the effect and protects the dye, the latter being preferred to paint, as it penetrates the fibre and is lasting. It has been estimated that these wood pulp screws can be made so cheaply as to successfully compete with screws and lag bolts of other types. A feature is that the screws can be removed readily, even after they have been set for a lengthy period.

The Government as a Publisher.

The Government of the United States is the greatest publisher in the world, and, whether considered as to their matter or their form, its books are, as a whole, poorer stuff than those on which any great publishing house puts its imprint. No one has attempted to estimate how much it costs the Government to be in the publishing business, and very few people know how grossly the printing and publishing facilities of the Government are abused. Provision for payment of work done by the Public Printer is scattered all through the appropriation bills and appears in the most unexpected places. A paper recently read on the Tehuantepec Railroad before the National Geographical Society in Washington was ordered printed at the Government expense, and it has come to this that any society having a charter from Congress claims and is accorded the right to have its publications issued from the Government Printing Office. One of the numerous societies of Sons or Daughters of the Revolution has already enjoyed this privilege, and as, including the societies of the descendants of the participants in the war of 1812, there are probably a score of such associations, the prospect of a large increase of public printing from this source seems to be exceedingly good.

As a fair sample, neither of the best nor the worst, of what is done under cover of the printing privilege, take the Year Book of the Department of Agriculture, for which an appropriation of $300,000 was inserted in the Urgency Deficiency bill the other day. It was explained by a Democratic member of the Appropriations Committee that in the last session of Congress an appropriation was made for printing the Agricultural Report for 1894, and there was no estimate made to that Congress for printing the report for 1895. He added: "This is the first time, with the exception of one other instance some years ago, where a Congress has failed to make any appropriation at all for the purpose, where we will have two appropriations for printing two Agricultural reports at the same session of Congress. The reason for this appropriation is that it will enable the Public Printer to get out the Agricultural report for 1895 about the month of June, instead of in October or November. I therefore concur in it, although it is not properly a deficiency appropriation."

Now, in point of fact, in the book thus provided for the report of the department bears the smallest possible relation to its total contents. The report is reproduced in the Year Book merely as a matter of form, having already been published as a part of the message and documents communicated to the two houses of Congress. We have not seen any table of the contents of the Year Book for 1895, whose publication both houses and both parties deem "urgent," but it is fair to assume that they are of a character similar to those of the book of 1894. The latter consisted of 580 octavo pages of reading matter, of which the report of the Secretary occupied fifty-eight pages. The remaining 522 pages are occupied by a series of papers from authors more or less competent, on subjects by no means without interest, but for the treatment of which there can be no possible reason why there should exist so-called scientific bureaus maintained at the expense of the United States, and for the publication of which there is as little reason why the people of the United States should be taxed. Here we touch a new ramification of the abuse of the Government intrusion into a sphere where it has no concern, but the position of the Government as a publisher necessarily involves a reference to the fact that it incurs a very large annual expense for the payment of its authors.

In the book before us we have an elaborate paper on "Education and Research in Agriculture in the United States," by the Director of the Office of Experiment Stations; another on "Soils in their Relations to Crop Production," by the Chief of the Division of Agricultural Soils; a third on "Water as a Factor in the Growth of Plants," by the Chief and Assistant Chief of the Division of Vegetable Pathology; a fourth on "Mineral Phosphates as Fertilizers," by the Chemist of the Department; a fifth on "The Geographic Distribution of Animals and Plants in North America," by the Chief of the Division of Ornithology and Mammalogy; a sixth on "Hawks and Owls as Related to the Farmer," by one of the Assistant Ornithologists, and a seventh on "The Crow Blackbirds and their Food," by another; and so on, with papers from the Entomologist, the Assistant Entomologist, the attachés of the Bureau of Animal Industry and the Division of Botany, not to mention the Agrostologist, the Chief of the Division of Forestry, and certain special agents and corresponding college professors. The papers, presumably, represent what their authors deem the most valuable results of a year's labors, which it is not necessary to assume have been deficient either in diligence or value.

On the printing, presswork, paper and binding of 500,000 copies of this book, the Government spends $300,000 a year—a sum, it may be remarked, greatly in excess of the amount for which it could be produced by any private printing establishment. The cost of distribution does not appear in the appropriation, that being one of the indirect charges on the Post Office Department which prevents the people from getting cheaper postage. Assuming that it is a book which ought to be in the house of every farmer in the land, the Government evidently does too little, for 500,000 copies are merely enough to establish, as in the cognate business of seed distribution, a system of gross favoritism. If, however, as seems to be the fact, the book is one chiefly fitted for the perusal of men who bring to farming a high degree of education and a certain amount of opulence, the Government is simply engaged in an unfair competition with the regular publisher of books on scientific agriculture, and that for the benefit of people who are abundantly able to pay for such literature. If these papers have any intrinsic value they would as readily find a publisher as a body of readers able and willing to pay for them. Be the results of the Government work in this field as excellent as possible they necessarily tend to lower the value of the work of private investigators, because they can be obtained for nothing.

But, whatever their utility or value, there is no more reason why the Government should publish scientific handbooks for the farmer at the public expense than that it should publish manuals for the weaver, the iron founder, or the machinist. The Year Book of the Department of Agriculture is merely one of scores of more or less costly publications which go to swell to positively stupendous dimensions the

annual product of the Government printing press. Public libraries which have incautiously accepted the product find that it makes demands on their space very far in excess of its value, and demands on their cataloguing facilities beyond their ability to satisfy. The evil of promiscuous publication by resolution of Congress has grown to an extent calling for some sharp and effective remedy. Both political parties have contributed to its growth, and in neither does there seem to be courage or resolution enough to try to arrest it. If there has been any evidence of a desire to cut down the printing bills it has been in regard to some of the most necessary statistical returns of the proper business of the Government, but never as to the documents by which a senator or representative may make some cheap reputation by distributing.—*New York Journal of Commerce.*

The Present and Future of Electricity.

By Wm. Baxter, Jr.

The last fifty years of the nineteenth century will be noted in history as an epoch of great scientific development; not only on account of the many discoveries that have been made, but also because of the numerous ways in which these discoveries, as well as those of the past, have been utilized for the benefit of mankind. Whether these fifty years will stand out as the period of greatest development only time can tell. Certain it is, however, that they will at least mark the beginning of an era of great progress in the practical application of the principles and phenomena of nature made known by scientific investigation. Whether the next fifty years will be as prolific in brilliant achievements as the half century now ending cannot be predicted with certainty; but, from what we know of the laws of nature, we must consider it probable that the future will be characterized not so much by great discoveries as by the extensive application of the knowledge already acquired.

Among the causes which have contributed to the progress of the present age electricity is a leading one; and the object of this article will be to show what has been done in this field, what we know of the laws and principles of the science, and thereby to show what we may reasonably expect in the future, and what bearing this work may have upon the value and usefulness of present devices.

The telegraph and telephone will not be considered, as any improvements that may be made in these lines cannot possibly revolutionize the affairs of the world, and would really be of more importance to the large corporations controlling these devices than to the general public. The aim will be to show the present development of the electric light and power industry, and the effect of future improvements or discoveries in this field on plants and machinery now in use, or such as may be installed in the immediate future.

Great as has been the progress made in the application to industrial purposes of electrical machinery, it, no doubt, would have been greater if capitalists had not been deterred from making investments through fear that unexpected improvements or inventions might be made that would render all existing apparatus valueless. Then, too, the belief is very general among laymen that we know very little about electricity, and electrical engineers are looked upon as a set of foolhardy men, who strike out in the dark and trust to luck. The fact that they are so largely successful is not taken as proof that they understand the subject, but rather that the Goddess of Fortune sees fit to smile upon them.

Whenever a group of men get together and begin to talk about electrical matters, the conversation does not proceed many minutes before some one will remark that electricity is in its infancy; that we are only on the threshold of the subject, and that really we do not know even the A B C of the science. If there should be some one present versed in the subject, and he should have the boldness to assert that electricity is not in its infancy, and that, instead of not knowing the A B C of the science, we know all about it, and, in fact, know quite considerable about the X Y Z as well, he would probably be looked upon as one of those men who view their own knowledge through glasses of large magnifying power.

It is not surprising that the general run of men should believe that the world knows next to nothing about electricity. Everyone is inclined to form an opinion of what is known about any subject by what he knows about it himself; and as electricity is looked upon as an unfathomable mystery by the average man, it is only natural that he should conclude that even those whose knowledge of the subject is the most profound know very little about it. As a matter of fact we know just as much about electricity as we do about light and heat. This statement may be looked upon with doubt, because when we are asked what is electricity we are compelled to say that we do not know. But do we know what heat and light are? The layman, perhaps, has never thought about these things, and believes we do. In point of fact, however, we know nothing about the nature of light, heat or electricity; but we know what they will do, and the conditions under which they act. We have opinions as the nature of these forces, and these opinions we call "theories."

It is not necessary to know what these forces are, either to utilise them at the present time or to determine in what way they may be applied in the future. If we know the effects they produce, and the exact conditions under which any given action takes place—in other words, if we know their laws we have at our command all the information required to enable us to handle them with as much certainty as we could if we knew just what they are. In other words, if we know the laws of electricity as well as we know the laws of heat or light, we are on just as firm ground when designing electrical machinery as we are when designing heat machinery—steam engines, for example. Mistakes have been made in designing electrical machinery, but so have they in designing steam engines; and in neither case have the mistakes been made in consequence of ignorance of the fundamental nature of the forces dealt with.

Everybody is familiar with most of the effects produced by heat and with some of those of electricity; but very few, outside of the engineering profession, understand the conditions under which these effects are produced. We may therefore say that the difference between the knowledge of the general public and the engineer in relation to these matters is that the former know something about the effects but nothing about the conditions required to produce them; while the latter know all about these conditions and are familiar with all the effects. The layman knows that if a current of electricity is passed through a machine called a "motor" it will rotate and drive machinery; but the electrical engineer knows the conditions under which electric energy must be applied to this machine to produce any required result. As the layman knows nothing about the conditions required to produce a certain result, he will accept any statement made in relation to the subject as within the limits of possibility. If he is told that the day may come when ten or even a hundred times as much power will be obtained from a given amount of electric energy as at the present time, he will very likely believe it. Owing to this fact a great many men hesitate about investing either in electric machinery or electric enterprises, as they fear that at any moment some one is liable to come forward with an invention that will render all present devices practically useless.

It seems worth while, therefore, to ask and endeavor to answer how much foundation there is for these fears; in other words, How well grounded is electrical practice, and how clearly can we see what is likely to be the course of future development?

In the first place, it should be noted to how small a degree new devices have superseded old ones in the past. The first of the modern applications of electricity to be reduced to practice was the arc light. Following this came the incandescent light; but the latter did not supersede the former. On the contrary, it occupied a new field of its own. Similarly, the alternating current system did not supersede the direct current. Its effect was to render practicable the distribution of electric light over longer distances; but in its own field the direct current is still preferred. In the same way the polyphase system has opened up new possibilities of achievement; but no one expects it to supersede the systems that went before it.

So far as electric generators and motors are concerned, revolutionary improvements seem simply impossible. These machines are nothing but converters of energy, the generator being a converter of mechanical into electrical energy, and the motor a converter of electrical into mechanical energy. These conversions are made at a loss ranging between about 7 and 10 per cent., according to the size of the machine; and it will be seen that the margin for improvement in this direction is small.

The direction in which improvements in machines of this class will be made in the future will be in the mechanical details; but even in this direction it will not be possible to make revolutionary advances, as the design of the most modern machines has been carried to a high state of perfection. Although improvements in design and construction may be made in the future, they will not be of so much value as to render machinery now in use valueless—any more than the gradual improvement of the steam engine has rendered the older engines valueless.

The development that we may expect in electric machinery will not be so much in the way of improvements on present apparatus as in the adaptation of motors and generators to new uses and devices.

The application of the electric motor is capable of wide extension beyond what has yet been done, which fact has been realized; and, as a result, some engineers have become so enthusiastic upon the subject that they have advocated the operation of all machinery in this way. That the arrangement would be beneficial in some cases there can be no doubt, but that in others the results would be unsatisfactory must be conceded by everyone familiar with the operation of machinery.

Those who advocate this system claim that the power required to run shafting and belting is so much greater than the loss of energy in motors that the saving in the coal bill would be an item of considerable importance in plants of any magnitude. They also claim that the expense and annoyance of keeping shafting and belting in repair are much greater than the cost and trouble of maintaining motors attached to each machine. This last claim is one that very few practical men will be willing to admit. An electric motor, like all other machines, is liable to get out of order; and no matter how perfect it may be it is evident that the trouble of taking care of 100 machines would be just 100 times as great as for one.

Shafting and belting sometimes give trouble on account of hot journals and loose lacings; but such troubles are so easily attended to that they would not be considered as a factor that would play any part in determining the relative merits of the present method of driving machinery and that involving the use of separate motors for each machine.

There is a large printing establishment in New York city that is now installing an extensive plant (consisting of printing presses and other machines used in the production of books), in which each machine is operated by its own motor. The result of this experiment will be watched with interest, as it will greatly help in determining the merits of the system.

No doubt numerous plants will be installed in the next few years with machines operated by independent motors, but it is highly improbable that this method will supersede shafting and belting.—*American Machinist.*

(To be continued.)

An account of the new fireproof paper prepared by L. Frobeen, of Berlin, shows the production of a valuable article for industrial and other purposes. Ninety-five parts of asbestos fibre of the best quality are washed in a solution of permanganate of calcium and then treated with sulphuric acid, the fibre being thus bleached. After treating the fibre in this manner five parts of ground wood pulp are added, and the entire mass placed in the agitating box, with an addition of some limewater and borax. After being thoroughly mixed the material is pumped into a regulating box and allowed to flow out of a gate into an endless wire cloth, where it enters the usual paper making machinery. Paper produced in this way, it is reported, will resist even the direct influence of a flame, and may be placed in a white heat with impunity. Ordinary paper may be made fireproof by treating it with a fluid consisting of thirty-three parts manganate of chloride, twenty parts orthophosphoric acid, twelve parts carbonate of magnesia, ten parts boric acid, and twenty-five parts chloride of ammonia in one quart of water; this solution is applied several times, and paper saturated with it will resist great heat and the direct influence of flame for some time.

Tighteners are placed on the slack side of belts because there is more strain or tension on the working side, due to extra load, which causes loss of tension on the slack sides. A self-adjusting tightener takes up this loss by keeping the tension almost constant. Any variation of load will cause the tightener to rise or fall and keep the belt from jumping. A tightener should never be rigid.

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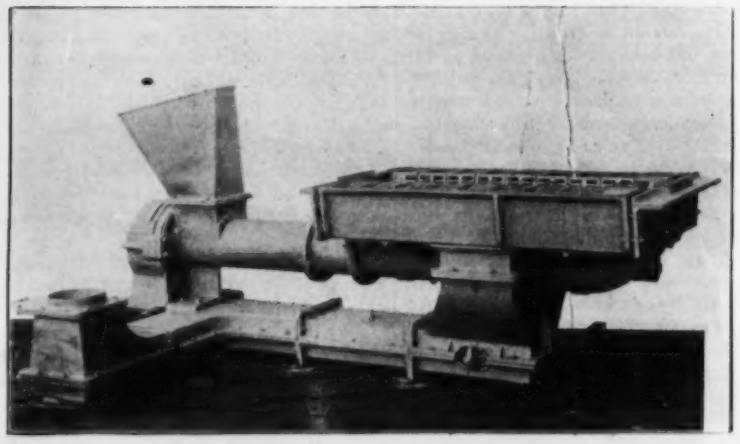

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IMPORTS AT NEW YORK.

FOR THE WEEK ENDED MARCH 20, 1896.

An. Colors...	841	$58,811	Paper	711	$25,790
Alum	46	221	Steel Pens..	4	2,649
Alum's Cake	—	—	Stationery .	9	718
Bl. Powders	311	5,184	Slate Pencil	6	52
Soda Ash...	2,792	8,369	Clay	—	635
Soda, Caus.	300	3,669	J'te B'ts,&c.	500	1,095
Soda, Sal....	—	—	P.Hangings	123	7,117
Soda, Hypo.	—	—	Pap'r Stock	3,139	50,348
Ultramarine	35	801	Terra Alba	—	—
Books.....	212	26,033	Waste.....	337	7,472
Newspapers	295	9,226	Wood Pulp	2,072	12,190
Engravings.	22	2,673			
Ink.....	417	1,112		—	—
Lead Pencils	36	4,432	Totals....	12,208	223,595

Imports General Merchandise for the week ended March 20, 1896.....$6,732,621

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO MARCH 25, 1896.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Antwerp.....	594	...	363	....	2,047
Bremen.....	206	....	....	...	....
Bordeaux.....	1,772	....	....	....	....
Bristol.....	....	...	....	....	1,871
Calcutta.....	....	....	....	....	2,037
Copenhagen..	160	....	340	....	38
Dundee.....	....	....	....	....	778
Genoa.....	574	....	....	....	564
Glasgow.....	115	635	....	....	239
Gothenburg ..	....	....	295	....	657
Hamburg.....	1,585	51	348	....	337
Havre.....	....	....	....	....	302
Hull.....	2,055	....	423	....	3,487
Kobe.....	....	....	....	....	5
Leith.....	....	....	....	....	111
Leghorn.....	537	....	....	....	....
Liverpool.....	625	75	....	....	2,556
London.....	1,502	1,581	....	....	1,351
Marseilles....	26	....	....	....	1,153
Nassau.....	17	....	....	....	....
Rotterdam....	1,119	....	353	....	964
Stettin	3,183	....	25	....	578
Valparaiso....	9	....	....	....	....

NEW YORK IMPORTS.

FROM MARCH 18 TO MARCH 25, 1896.

Paper Stock.

G. Hamilton, Westernland, Antwerp, 20 tons chemical fibre.
F. Bertuch & Co., Island, Copenhagen, 50 tons chemical fibre.
S. Goldman, by same, 40 tons chemical fibre.
Train, Smith & Co., Boston City, Bristol, 304 bs. manillas.
Train, Smith & Co., Pomeranian, Glasgow, 132 bs. papers.
Castle & Gottheil, Lepanto, Hull, 85 bs. rags.
Train, Smith & Co., by same, 124 bs. rags.
F. Bertuch & Co., by same, 20 tons chemical fibre.
S. Rawitzer & Co., Italia, Leghorn, 18 bs. rags.
Jessup & Moore Paper Company, by same, 88 bs. rags.
James Pirnie, Nomadic, Liverpool, 28 bs. bagging.
R. W. Carroll & Co., by same, 15 bs. rags.
Train, Smith & Co., by same, 32 bs. bagging.
Horace Dutton & Co., Mobile, London, 17 bs. manillas.
Devoy Brothers, America, London, 217 bs. bagging.
Castle & Gottheil, by same, 266 bs. paper.
Atterbury Brothers, Hindoustan, Marseilles, 26 bs. rags.
J. W. Mason & Co., Island, Stettin, 122 bs. manillas.

Paper.

O. F. Melvin, Westernland, Antwerp, 2 cs.
Kupfer Brothers, by same, 16 cs.
L. C. Wagner, by same, 5 cs.
F. W. Hampton, Jr., & Co., by same, 30 cs.
R. F. Downing & Co., by same, 10 cs.
O. G. Hempstead & Co., Mobile, London, 1 cs.
G. W. Sheldon & Co., Taormina, Hamburg, 11 cs.
Isaac Vought & Co., Havel, Bremen, 2 cs.
Dennison Manufacturing Company, Teutonic, Liverpool, 1 cs.
Neuss, Hesslein & Co., Zaandam, Rotterdam, 16 cs.
Henry Lindenmeyr & Sons, by same, 111 cs.
J. Marsching & Co., Campania, Liverpool, 7 cs.
B. O. Meyer, by same, 7 cs.
Warren, Fuller & Co., by same, 3 cs. hangings.
E. Hawley, New York, London, 2 cs. hangings.
W. H. S. Lloyd, by same, 3 cs. hangings.
J. Wallace, Maasdam, Rotterdam, 25 cs.
R. F. Downing & Co., by same, 7 cs.
Henry Lindenmeyr & Son, Tergesta, Trieste, 78 cs.
American Trading Company, La Normandie, Havre, 37 cs.
Spiegelberg & Co., by same, 10 cs.
E. B. King, by same, 7 cs.
Marcus Ward & Co., Lepanto, Hull, 4 cs.
G. W. Sheldon & Co., by same, 8 cs.
Warren, Fuller & Co., La Normandie, Havre, 1 cs. hangings.
Phillips, Hand & Co., Moravia, Hamburg, 2 cs.
Vernon Brothers, by same, 16 bs.
Henry Lindenmeyr & Sons, by same, 16 bs.
Hensel, Bruckman & Lorbacher, by same, 77 bs.

BOSTON IMPORTS.

FROM MARCH 12 TO MARCH 26, 1896, INCLUSIVE.

Paper, &c.

F. Abrams, Belgian King, Antwerp, 1 cs. paper.
River Spinning Company, by same, 18 cs. paper.
W. A. Nosworthy, Victorian, Liverpool, 15 cs. paper.
Wadsworth, Howland & Co., by same, 6 cs. drawing paper.
W. A. Nosworthy, Georgian, London, 15 cs. paper.
Wm. Guild & Co., Sylvania, Liverpool, 6 bs. periodicals.
W. A. Nosworthy, by same, 15 cs. paper.
Gaige & Co., by same, 2 cs. paper hangings.
Stitson Brothers, by same, 1 cs. paper hangings.
Adolph Parely, by same, 2 cs. paper hangings.
Gregory & Brown, by same, 12 cs. paper hangings.
Thos. Y. Crowell & Co., by same, 1 cs. printed cards.
Dennison Manufacturing Company, Michigan, Liverpool, 6 bs. tissue paper.
Stone & Downer, British Queen, London, 1 cs. paper hangings.
J. Farley & Son, Angloman, Liverpool, 8 bs. paper.
H. R. Hallett, Cestrian, Liverpool, 4 cs. tissue paper.

Paper Stock.

Train, Smith & Co., Scipio, Hull, 76 bs. manillas, 184 bs. flax waste.
W. F. Corne, by same, 22 bs. rags.
Horace Dutton & Co., by same, 72 bs. rags.
Train, Smith & Co., Belgian King, Antwerp, 36 bs. rags.
Train, Smith & Co., Victorian, Liverpool, 134 bs. rags, 63 bs. manillas.
E. Butterworth & Co., by same, 24 bs. rags, 25 bs. manillas.
Train, Smith & Co., Scandinavian, Glasgow, 68 bs. rags, 195 bs. waste papers.
W. F. Corne, by same, 47 bs. rags.
E. P. True, by same, 55 bs. waste papers.
Horace Dutton & Co., Parkmore, London, 165 bs. rags, 193 br. waste papers, 656 bs. flax waste.
E. Butterworth & Co., by same, 98 bs. waste papers.
Train, Smith & Co., Georgian, London, 813 bs. rags, 106 bs. manillas.
Wheelwright Paper Company, by same, 80 bs. waste paper.
Crocker, Burbank & Co., by same, 240 bs. waste paper.
G. W. Millar & Co., by same, 237 bs. waste paper.
T. F. Ring, by same, 50 bs. waste papers.
Train, Smith & Co., Sylvania, Liverpool, 16 bs. rags, 281 bs. manillas.
Train, Smith & Co., Norse King, Antwerp, 319 bs. rags.
E. Butterworth & Co., by same, 360 bs. manillas.
Train, Smith & Co., Angloman, Liverpool, 92 bs. rags.
Horace Dutton & Co., British Queen, London, 418 bs. flax waste.
E. Butterworth & Co., Cestrian, Liverpool, 140 bs. rags, 10 bs. waste papers.
Horace Dutton & Co., Michigan, Liverpool, 43 bs. rags.
E. Butterworth & Co., Ottoman, Liverpool, 75 bs. manillas.
E. P. True, Kansas, Liverpool, 34 bs. rags, 145 bs. waste paper.

Wood Fibre.

R. Helwig, Belgian King, Antwerp, 796 bs.
Morey & Co., Scipio, Hull, 406 bs.
Page, Newell & Co., by same, 160 bs.
Fred. Bertuch & Co., by same, 1,120 bs.

Wood Pulp.

Geo. A. Clark, I. V. Dexter, Liverpool, N. S., 2,417 bdls.
Geo. A. Clark, Dessie M., Lunenburg, N. S., 1,859 bdls.

Sizing.

Thomas Groom & Co., Victorian, Liverpool, 80 bags.
Train, Smith & Co., by same, 180 bags.
Order, by same, 160 bags.
E. Butterworth & Co., by same, 155 bags.
Thomas Groom & Co., Sylvania, Liverpool, 75 bags.
Train, Smith & Co., Cestrian, Liverpool, 125 bags.
E. Butterworth & Co., by same, 298 bags.
Warren & Co., Angloman, Liverpool, 61 bags.

Bleaching Powder.

J. L. & D. S. Riker, Angloman, Liverpool, 86 cks.
J. L. & D. S. Riker, Cestrian, Liverpool, 340 cks.
Bowman, Thompson & Co., by same, 41 cks.
Morey & Co., by same, 81 cks.
Jerome Marble & Co., by same, 46 cks.
J. L. & D. S. Riker, Kansas, Liverpool, 222 cks.
J. L. & D. S. Riker, Michigan, Liverpool, 172 cks.
J. L. & D. S. Riker, Ottoman, Liverpool, 168 cks.
J. L. & D. S. Riker, Victorian, Liverpool, 149 cks.
Morey & Co., by same, 99 cks.
Bowman, Thompson & Co., by same, 41 cks.
J. D. Lewis, Belgian King, Antwerp, 19 cks.

Caustic Soda.

Edward Hill, Sons & Co., Sylvania, Liverpool, 175 drums.
Warren & Co., Angloman, Liverpool, 100 drums.

Soda Ash.

Wing & Evans, Kansas, Liverpool, 14 cks. and 80 bags.
Wing & Evans, Ottoman, Liverpool, 20 cks. and 80 bags.
Warren & Co., by same, 55 cks.
Churchman & Co., by same, 19 cks.
Morey & Co., Victorian, Liverpool, 35 cks. and 200 bags.
Wing & Evans, by same, 154 cks. and 950 bags.
Morey & Co., Cestrian, Liverpool, 35 cks. and 200 bags.
Wing & Evans, by same, 123 cks. and 1,450 bags.

Soda Crystals.

Warren & Co., Kansas, Liverpool, 140 bbls.
Same, Angloman, Liverpool, 140 bbls.

Crude Sulphur.

Linder & Meyer, Victorian, Liverpool, 1,668 bags.
Same, Cestrian, Liverpool, 1,689 bags.

Pulp Stones.

Lombard & Co., Victorian, Liverpool, 10 stones.
Lombard & Co., Scipio, Hull, 32 stones.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED MARCH 21, 1896.

Paper.

Lawrence Johnson & Co., Eliza J. McManemy, Havana, 39 bs.
A. G. Elliot & Co., Westhall, Hamburg, 46 bs.
Chas. Beck Paper Company, by same, 28 bs.
A. Hartung & Co., by same, 40 bs.

Paper Stock.

Lawrence Johnson & Co., Eliza J. McManemy, Havana, 9 bs. old rope.
O. G. Hempstead & Son, Westhall, Hamburg, 10 bs. waste.

Bleaching Powder.

Order, Pennsylvania, Antwerp, 160 bbls.
Brown Brothers & Co., by same, 112 bbls.
J. L. & D. S. Riker, Rhynland, Liverpool, 50 cks.

Sulphate of Soda.

Chas. Lennig & Co., Westhall, Hamburg, 50 cs.

China Clay.

Dunn Brothers, Rhynland, Liverpool, 300 cks.

EXPORTS of Paper, &c., from New York for the Week Ended March 24, 1896.

BOOKS, to British Australasia, 2 cs.; Cuba, 1 pkg.; British possessions in Africa, 6 cs.; Hamburg, 10 cs.; British West Indies, 12 pkgs.; London, 10 cs., Central America, 16 cs.; Liverpool, 9 cs.; Danish West Indies, 2 pkgs.; Mexico, 2 cs. Stockholm, 4 cs.; Venezuela, 2 pkgs.

PAPER, to San Domingo, 91 pkgs.; Colombia, 85 pkgs.; Bangor, 1 cs.; Central America, 111 pkgs.; Bolton, 5 cs.; Cuba, 35 pkgs.; Copenhagen, 64 pkgs.; British Australasia, 110 pkgs.; Dutch West Indies, 12 pkgs.; Brazil, 197 pkgs.; Hayti, 20 pkgs.; Havre, 62 cs.; Berlin, 7 cs.; London, 420 cs.; Liverpool, 54 cs.; British possessions in Africa, 24 cs.; Mexico, 69 pkgs.; British West Indies, 449 pkgs.; Rotterdam, 10 cs.; Venezuela, 11 pkgs.; to Mexico, 14 cs.

STATIONERY, to San Domingo, 1 cs.; Colombia, 2 cs.; British Australasia, 58 pkgs.; Cuba, 4 cs.; Brazil, 2 cs.; Gothenburg, 1 cs.; British possessions in Africa, 94 cs.; Hayti, 7 pkgs.; British West Indies, 38 pkgs.; Hamburg, 3 cs.; Central America, 10 pkgs.; London, 52 cs.; Danish West Indies, 3 cs.; Liverpool, 4 cs.; Ecuador, 3 cs.; Mexico, 52 cs.; Southampton, 1 cs.; Venezuela, 5 pkgs.

SANDPAPER, to British Australasia, 3 pkgs.; Vienna, 5 bdls.; Darmstadt, 63 bdls.; Venezuela, 1 cs.; Denton, 26 bdls.; Garston, 5 bs.; Havre, 3 bs.; London, 95 bdls.; Mexico, 10 cs ; Colombia, 1 bale.

TWINE, to British Guiana, 3 bs.; Ecuador, 1 bale; Brazil, 23 bbls., 42 bs., 2 cs.; Hayti, 2 bs.; British West Indies, 13 pkgs.; Odessa, 800 bs.; Central America, 2 bs.; Colombia, 1 bale; Dutch West Indies, 2 bs.; Venezuela, 12 bs.; French West Indies, 1 bale; Liverpool, 5 pkgs.; San Domingo, 2 bs.

PAPER BOXES, cases, to British possessions in Africa, 15; British West Indies, 30.

PLAYING CARDS, cases, to British Australasia, 24; Hayti, 1; British possessions in Africa, 2; British West Indies, 3; Southampton, 7; Central America, 1.

PAPER BAGS, to British Australasia, 64 bs.; Portuguese possessions in Africa, 18 pkgs.

WALL PAPER, to British East Indies, 1 cs.; London, 8 cs.; Central America, 57 bs.

LABELS, cases, to Central America, 1; Dutch West Indies, 1; Liverpool, 1; San Domingo, 1.

CARDS, cases, to British West Indies, 1.

STRAWBOARD, bundles, to Manchester, 180.

PAPER PATTERNS, cases, to London, 2.

TAGS, cases, to Newcastle, 4; British Australasia, 1; British West Indies, 1.

PAPER CAPS, cases, to British possessions in Africa, 2.

AGGREGATES AND VALUES.

Wood Pulp, bdls.....	—	—
Wood Pulp, cases.....	36	$1,505
Cotton Waste, bs.....	141	5,697
Rags, bs.....	23	208
Paper, reams.....	—	—
Paper, pkgs.....	1,433	8,698
Paper, cases.....	601	10,309
Books, cases.....	59	3,738
Books, pkgs.....	15	354
Stationery, cases.....	222	9,778
Stationery, pkgs.....	118	1,967
Rosin, bbls.....	6,884	20,104
Totals.....	9,583	$62,313

Exports General Merchandise for the week ended March 24, 1896..... $6,304,832

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G. T. MOORE, - Westfield, Mass.

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Absolutely no leakage from any source; no dripping or sweating; fire-proof; ventilating.
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ENGLISH FELTINGS.
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Exporters of all Grades of Sulphite and Soda Pulps.
SIGMUND GOLDMAN, Agent for the United States and Canada,
BENNETT BUILDING, 99 NASSAU STREET, NEW YORK.

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Highest tests, free from iron, and all other grades used by paper makers.
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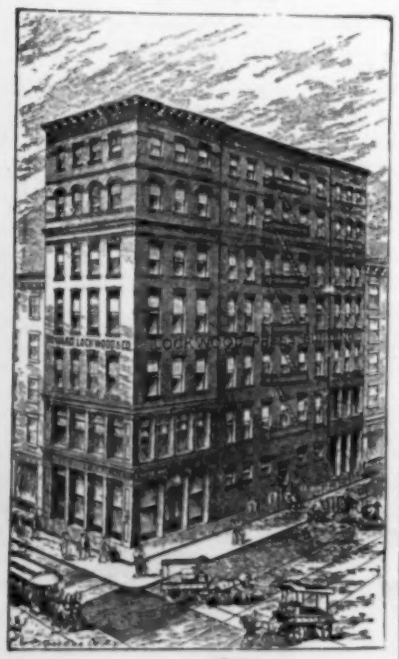

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NEW YORK: SATURDAY, MARCH 28, 1896.

SPECIAL NOTICE.

Part 4 of "Hofmann's Treatise on Paper Making" has been delivered to subscribers. Thus far we have published 288 pages; each part consists of seventy-two body pages and cover. We translate the work from German into English, and print it with good ink, in clear type, on first-class paper, which will stand the test of time. Great care is taken in printing and locating the many illustrations. "Hofmann's Treatise" ought to be in the library or office of every paper manufacturer, and also owned by every superintendent and paper maker who is ambitious to be fully posted on his trade. The price is $1 in advance for each part. If your order has not already been given send $4 and the four parts will be sent to you; or you can send $5 or $10, and as many parts will be forwarded in due course as there are dollars in your remittance.

HOWARD LOCKWOOD & CO.

THE House Committee on Post Offices and Post Roads has favorably reported, with the concurrence of the Post Office Department, a bill to make the Government liable to a limited amount for registered matter which is lost. This is a step in the right direction. The registered letter and parcel service of the Post Office Department seems to be very efficiently conducted, and losses seldom occur. It is presumable, therefore, in assuming partial responsibility for registered matter that even greater vigilance will be exercised to protect the Government from loss. Most European Governments assume such limited liability; there is no reason why ours should not, also.

A DEVICE intended to keep the drying cylinders of paper making machines free from the water of condensation is the subject of illustration and description on the first page of this issue of THE PAPER TRADE JOURNAL. It is the invention of a well-known paper manufacturer and is, presumably, the result of approved and practical experience.

SOME things done without warrant of law are acquiesced in by the public simply because of lack of information. The Post Office Department has more than once taken upon itself arbitrary powers, and its latest action in this direction is to notify its subordinates that bound back numbers and reprints of back numbers, as well as all editions, except the first, of newspapers, magazines and other periodicals, are to be treated as third-class matter. It also declares that when a paper or periodical changes its periodicity of publication back numbers issued prior to the change cannot be sent as second-class matter. Careful reading of the postal law fails to reveal any authority whatever for the ruling, and certainly it is without precedent. Organized remonstrance to its meddlesome and unauthorized invasion of private rights seems to us justifiable.

BIMETALLISM is again the subject of some talk in Europe, a few of the Governments, including that of the United Kingdom, having passed resolutions more or less favorable to reopening the subject through another international conference, although each has been equally careful not to commit itself to any line of policy in the matter. There can be no doubt that the anomalous condition of silver as a money metal is becoming more and more a cause of industrial and commercial disturbance to every trading nation in the world. That it will continue to be so until international agreement settles the relations of gold and silver as money metals is equally certain. Judging from surface indications, jealousy is the main cause operating to prevent such a settlement. It is noticeable that although the resolution urging the Government to do everything in its power to secure by international agreement a stable monetary par of exchange between gold and silver passed the British House of Commons, Sir Michael Hicks-Beach, Chancellor of the Exchequer, during the debate notified his colleagues with much emphasis that the resolution was to be taken in a Pickwickian sense only, so far as any action on the part of the English Government was concerned.

THAT proposed export duty on spruce pulp wood is yet being talked about by our Canadian neighbors, and, as we have said, it is a subject worth considering from every point of view. It is, however, a pretty broad statement to say that three-quarters of the paper made to-day in the United States is the direct product of Canadian forests, and it is very doubtful if this assertion can be proved. There is a good deal of spruce timber left in the United States, and it may be said, to the surprise of our Canadian friends no doubt, that a considerable amount of paper is yet made here in which wood pulp plays no part. The same means which obtain in this country are open to Canadians for the improvement and expansion of their wood pulp industry. There is a growing market abroad for the product, and no doubt large quantities can be sold there. There is no reason why the Canadians should not engage in making wood pulp on a large scale if they consider it a profitable business, and if it means, as they assert, "millions of money for the Dominion, and employment for thousands of her men," it would seem to be not only an individual opportunity of rare value, but a patriotic duty of uncommon urgency for the people of Canada to go into wood pulp making in the biggest kind of a way. It would also be eminently more successful from an economic standpoint, to put a sturdy shoulder to the Dominion wood pulp industry than to stand making mouths and saying things not heard in Sunday schools at the United States because her people have proved to be superior in energy. We can assure our Canadian friends that the American maker of wood pulp has not thus far found that the industry very closely resembles a sybarite's heaven, so far as risks and responsibilities are concerned; but then the American manufacturer does not allow himself to imagine that business is a rose strewn path, or that a pot of gold is to be found at the end of every commercial rainbow. An export duty might keep considerable wood pulp standing in Canadian wildernesses, but it does not necessarily follow that the standing timber will make any particular haste in getting into Canadian grinders. Energy and capital are rather important factors; more important than talk, in fact. Americans have found that the way to make wood pulp is to make it. Just at present we have nothing better to advise than this plain, old fashioned way of doing. Try it, friends! Moreover, we commend to the reading of the champions of an export duty on Canadian pulp wood the closing paragraph in our letter from the Fox River Valley printed last week in this journal, as a slight hint of what Yankee wit might do if hard pressed for raw material. Basswood comes to maturity in five or six years after transplanting, and grows well everywhere.

Watermarks.

BY DANDY.

The sage of Ballston attended the recent Republican State convention in this city, at which Warner Miller was elected a delegate to the National gathering, and one of the daily papers gave a picture of him, entitling it "One of the Brownies." Pretty solid "Brownie," I should say.

The same paper also said that this aforesaid "Brownie" was a candidate for the Governorship of the Empire State. The ambition of every paper manufacturer is to be Governor of his own State, and it is a good ambition.

Some time ago the cashier of a Duane street house was astonished by the arrival of twins at his house. Now a salesman in the same house has been astonished the same way, and it looks as if there was to be an epidemic of the trouble.

A New Jersey mill which collapsed financially this week was erected originally for the purpose of making paper out of sea grass, but the scheme was not a success, and the plant passed into other hands. In those days the grass used to go to the mill, now the mill has "gone to grass."

There was another echo of the Albion failure a few days ago. A pulp importer who on the Tuesday preceding the failure received a check for $500 from the mill has been congratulating himself that at least that amount was saved from the wreck. He deposited the check on the day he received it, and it went the rounds, reaching the bank on which it was drawn on the Monday on which the call to creditors was sent out, almost a week after it was sent from the mill. It was not paid. Another case of "now you have it, and now you haven't."

It would seem as though a banking system which necessitated a week's time to have a check go from New York to Holyoke is not so perfect as it might be.

An exchange says: "One man's recreation is another man's penance." That is beautiful, and perhaps true in theory, but practically it does not go. If I can find the other fellow, I'll take the recreation and he can have the penance every time.

As a rule the same man gets both—the penance following on the day afterward.

There is a red cheeked stock man in this town who went to Philadelphia recently, and paid a visit to a fine looking, venerable paper manufacturer in that city. As they walked down Eighth street together the p. m. was hailed with a "Hello, papa," the speaker assuming that the stock man was the son. The fun of it is that both of them denied the allegation, and both seemed to be indignant over it. There is no satisfying some people.

The p. m. might possibly have been greatly gratified had he been called the son instead of the father.

When several paper men get together now it is always a question whether the discussion will turn to paper or to bicycles, the wheel as a rule having a little the lead.

One man who tried the wheel, and was thrown, to the ruin of his wheel, new suit, and golf stockings, when asked when he was going cycling again said: "I'm no hog. I know when I have enough. That wheel 's for sale, and the suit is in the rag bag."

Failures at Holyoke.

[By telegraph to THE PAPER TRADE JOURNAL.]

HOLYOKE, Mass., March 27, 1896.

The Smith, Wilson & Sears Company has failed, with liabilities of over $100,000, and assets reported to be nominal. There was a meeting of the directors of the company yesterday, and the news was given out late last night. A meeting of the creditors has been called for the afternoon of Monday, March 30. The company owns its building and machinery, and its factory will be run until after the creditors' meeting. The failure is attributed to the general business depression, but the officers decline to talk about affairs until the meeting on Monday. The heaviest creditors are Holyoke manufacturers. The company was organized in October, 1894, and was reorganized in December of last year, the capital being increased to $56,000. H. P. Sears is the president of the company, and Edwin Bradley is the treasurer. The concern employed forty hands. The only banks involved are the Home National and the Mechanics' Savings banks.

A special meeting of the stockholders of the Albion Paper Company has been called for Thursday afternoon, April 2, to consider and act upon the question of increasing the capital stock of the company. H.

Trade Talks.

A. F. Holden, of the Little Falls Paper Company, Newburgh, N. Y.—I think that from the observations I have been able to make about business the indications for trade are better, although I do not think that there has been any recent improvement either in prices or in the general demand. I believe that the year 1896 will, however, be a much better business year than the year 1895. I am impressed with the fact that the tendency is in the right direction. Business is surely a great deal better at the present time than it was two or three years ago, but it is not so good as it was prior to that period. It is an old story that prices have been reduced and that more paper has now to be sold to make the same degree of profit. In other words, that we have to do more work for less money than we did. Manufacturers have been helped out some by the prices of stock, which generally range lower than they did a year ago. The price of sulphite is a little less, of bagging about the same, while ground wood costs a little more. Both of our mills are running, and under the peculiar conditions which exist with us we always keep them running on full time. This indicates that we do not have any difficulty about securing orders, although prices are pretty close. Neither do we have any trouble in our collections. We have not experienced any inconvenience on account of lack of water, and are well provided with steam power; but we have had some trouble by reason of high water.

E. S. Turton, President of the C. B. Turton Company, New York—Our business is dealing in naval stores for the domestic and foreign trade, and we make a specialty of rosins used in the manufacture of soap and paper. We have been increasing our business principally in the paper trade line for the last two or three years. The only matter of importance to speak of in the rosin trade is the increased price which has prevailed for the past several months, the price for paper makers' grades of rosins having been gradually advancing—I should say from about 10 to 15 per cent. Lately rosin has been rather scarce, induced principally by the large export demands, chiefly for Europe. A great many of the paper makers are complaining and kicking about these higher prices, but it is to be noted that they have not been induced by any increased demand on their part. Their demand has been normal, although it is true that the paper trade has been using a pretty fair quantity. On the other hand, the increased export demand referred to above is distinctly not by the paper makers alone by any means. A large quantity of rosin is used abroad for other purposes as well, as for instance and principally in making oil and soap. A good idea of the extent of the export trade may be obtained from a comparative statement of the production in this country for two years up to January 31, which was 1,559,000 barrels last year, against 1,695,000 barrels this year. Of that quantity more than one-half would be composed of the lower grades of rosin and the balance of the paper makers' and oil manufacturers' grades. Out of this quantity probably one-third is used in this country and the remaining two-thirds are exported. The United States is the great rosin producing country, for after supplying the demands of our own manufacturers there is enough to supply the remainder of the world, and you can say truthfully that this country practically supplies the whole world with its rosin. France produces some rosin, but its output does not amount to more than 25,000 barrels, which is not enough to meet her own wants. Hamburg each year takes about 80,000 barrels; Harburg about 80,000 barrels, and Antwerp about 50,000 barrels, so that those three cities alone buy, say, 215,000 barrels from the United States annually. Then there are Liverpool, which imports 100,000 barrels, and London, 50,000 barrels. As every paper manufacturer knows, rosin is bought on gross weight. The rosin is run into the barrel solid and all is sold together, an allowance being made for the return of the barrel. This is done because the tare of a barrel cannot be got at and there is no fixed weight, which depends upon the amount of water that there is in it and how long the sun has been at it. The barrels of rosins from the North Carolina districts weigh about 450 pounds, but the Savannah rosins are the heaviest and run, on an average, from 460 to 500 pounds per barrel. The average weight of 200,000 barrels of rosin exported from the port of Savannah, which was calculated some time ago, was about 460 pounds, but this weight has now probably been increased by some 20 or 30 pounds.

Changes, Removals and New Firms.

The Boston (Mass.) *Jury* has suspended publication.

J. R. Dean, stationer, &c., Greensboro, Ala., has sold out.

Spokane, Wash., has a new monthly journal called *Mining*.

The *Daily News*, Pittsburg, Pa., is a new evening paper.

Alex. Reynick, publisher, Beresford, S. Dak., has sold out.

C. S. Hamlin, publisher, Garretson, S. Dak., has sold out.

George M. Miller has opened a wall paper, &c., store at Aurelia, Ia.

Higgins & Parsons have opened a wall paper store at Dover, Del.

J. F. Garrett, stationer, Woodland, Cal., has sold out to Israel Laskey.

Hagan & Aalfs have opened a wall paper, &c., establishment at Le Mars, Ia.

Lyon & Vanderbaugh, publishers, Selma, Cal, have dissolved partnership.

Cumming & Lee, publishers, Hampton, Va., have dissolved partnership.

The *Weekly Enterprise*, Brockton, Mass., has suspended publication.

R. A. Harris, publisher, Monmouth, Ore., has been succeeded by A. W. Cook.

Wm. Schmeil & Co. have opened a wall paper, &c., store at Rock Island, Ill.

H. F. Selkirk, publisher, San Bernardino Cal., has sold out to Buck & Goodwin.

Brydia & Andrew, printers, Fairbury, Ill., have been succeeded by C. S. Brydia.

Chas. Penniman has gone into the wall paper, &c., business at Franklin, N. H.

C. S. Eastwood, publisher, Worthington, Minn., has been succeeded by H. Hawley.

W. H. Hall, publisher of the *Advance*, Virden, Man., has sold out to D. J. Benham.

The *Ladies' Home Companion*, Springfield, Ohio, has been changed to a monthly paper.

J. Willard Smith, bookseller and stationer, Freeport, Ill., has sold out to Pattison & Kingdor.

G. W. Pearson, publisher, Union City, Tenn., has been succeeded by Stratton & Pearson.

Youngblood & Co., booksellers and stationers, Sioux Falls, S. Dak., have dissolved partnership.

Peters, York & Co. have opened a stationery and printing establishment at Scranton, Pa.

The *Cycle*, New York, has changed its name to the *Lotos*. It was originally the *Home-Maker*.

Prince & Wyman, publishers, Waterville, Me., have been succeeded by the *Mail* Publishing Company.

The Trapp & Hocking Decorating Company has opened a wall paper, &c., establishment at Peoria, Ill.

George Dean and Grant Van Eseltine will open a wall paper, &c., store at Syracuse, N. Y., about April 1.

The business of James Bain & Son, booksellers, Toronto, Ont., which was closed under chattel mortgage for $4,500, has been purchased by A. E. Huestis and is being

run under the style of the Bain Book and Stationery Company.

T. R. Porter, stationer, &c., Woodland, Cal., has been succeeded by Porter & Son.

J. L. Henry, manufacturer of paper boxes, &c., Waupum, Wis., has been succeeded by the J. L. Henry Company.

The *Home Study*, Scranton, Pa., is a new monthly magazine published by the *Colliery Engineer* Company.

The *Social Life*, St. Paul, Minn., is a new weekly paper edited and published by Lyle M. Fisher, of the *Masonic Record*.

The Hornstein Printing Company, Chicago, Ill., has been incorporated by Frank S. Shaw, Leon Hornstein and Henry M. Shabad. Capital stock, $2,500.

The Orcutt Company, Chicago, Ill., has been incorporated to do a general printing and lithographing business by Wm. J. Lee, Killian V. R. Lansing and Robert F. Pettibone. Capital stock, $2,500.

The Pusey & Jones Canadian Company has been organized as a branch of the Pusey & Jones Company, Wilmington, Del., to do business at Sault Ste. Marie, Ont.

The Immaculate Kaolin Company, Langley, S. C., has been organized. President, J. C. Lamar, Augusta, Ga.; secretary, G. R. Landrum; superintendent, C. B. Lamar.

The Church Union Company, New York, has been incorporated to print publications of all kinds. Capital, $2,500. Directors—Samuel T. Carter, of Huntington, N. Y.; R. E. Carter, of Washington, and E. H. Fellows and D. T. Carter, of New York.

The *Varieties* Publishing Company, of New York, has been incorporated to publish *Varieties*, a monthly magazine. Capital $5,000. Directors—Joseph Moorhead, of Brooklyn; P. J. Carey, of Bath Beach; B. S. Durrant and F. M. Durrant, of New York.

The Emerson Bag and Paper Company, Alexandria, Va., has been incorporated to manufacture paper bags and to deal in these and paper. Thomas O. Hills, Washington, D. C., is president of the company, and H. C. Emerson, Alexandria, is vice-president and general manager.

The Birley Folding Box Company, Norwich, Conn., has been incorporated with a capital stock of $35,000; and directors: Frank P. Birley, of Toronto; Reuben T. Palmer, Jr., of New London; Addison Kingsbury, of South Coventry; Frank H. Allen and Wm. P. Potter, of Norwich.

Failures.

G. C. Huttemeyer & Co., printers, Montreal, Que., have made an assignment.

Francis Martin, printer and publisher, Chicago, Ill., has made an assignment.

C. H. Harrison, dealer in paper, &c., Newark, N. J., has made an assignment.

R. R. Patterson, printer, San Francisco, Cal., is advertised to be sold out by the sheriff.

M. J. Kern (Mrs.), dealer in stationery, &c., Manitowoc, Wis., has made an assignment.

The *Journal*, Ottawa, Ill., published by Lester A. Rose, has been closed under a chattel mortgage for about $5,000.

A dividend of 25 per cent. has been ordered to be paid to the creditors of the Owen Paper Company, Housatonic, Mass.

George W. Greene, bookseller and stationer, Rockford, Ill., has confessed judgment for $1,500 and the sheriff has taken possession of his store.

James C. Addison, wholesale dealer in paper and paper goods, at 627 and 629 Louisiana avenue, Washington, D. C., made an assignment on March 23 to William H. Sholes and J. G. Smith, for the benefit of his creditors. The assets are estimated at $37,445.61, consisting of stock and fixtures to the amount of $22,833.40, and outstanding bills amounting to $14,612.21. The liabilities are placed at $37,909.32. The following is a list of the largest creditors: Antietam Paper Company, Hagerstown, Md., $4,639.70; Edward Beckett, New York, $1,273.44; Smith, Dixon & Co., Baltimore, Md., $2,175.17; Plimpton Manufacturing Company, Hartford, Conn., $1,671.88; S. E. & M. Vernon, New York, $2,119.19; Mount Holly Paper Company, Mount Holly Springs, Pa., $1,413.97; Norman Paper Company, Holyoke, Mass., $1,361.63; Dill & Collins, Philadelphia, Pa., $924.35; Geo. H. Friend Paper Company, Dayton, Ohio, $980.78; Linden Paper Company, Holyoke, Mass., $937.22; Linton Brothers & Co., Pawtucket, R. I., $740.05; National Blank Book Company, Holyoke, Mass., $670.07; Saugerties Manufacturing Company, Saugerties, N. Y., $496.75; Taylor Manufacturing Company, Holyoke, Mass., $348.29; Whitcomb Envelope Company, Worcester, Mass., $425.07; Whiting Paper Company, Philadelphia, Pa., $492.90; P. P. Kellogg & Co., Springfield, Mass., $458.62; Hurlbut Stationery Company, Pittsfield, Mass., $233.36; S. T. Smith Company, New York, $308.53; Whiting Paper Company, New York, $284.73; Springfield Envelope Company, Springfield, Mass., $872.27; West Jersey Paper Company, Camden, N. J., $219.38; Mittineaque Paper Company, Mittineaque, Mass., $438.82; M. C. Fenton & Co., Baltimore, Md., $205.68; Smith, Wilson & Sears Paper Company, Holyoke, Mass., $284.66; White, Corbin & Co., Rockville, Conn., $354,-76; Wm. R. Brown, agent, Philadelphia, Pa., $482.45; Birnie Paper Company, Springfield, Mass., $584.14; A. A. Weeks, $100.48; Martin Cantine Company, $138.78; Carter, Dinsmore & Co., $119.82; East Hartford Manufacturing Company, $131.13; E. Faber, $338.22; Ph. Hake Manufacturing Company, $141.54; Columbia Paper Bag Company, $315.51; Robert Gair, $120.36; S. S. Stafford, $146.40; Smith & White Manufacturing Company, $174.22; United States Printing Company, $134.55; Logan, Swift & Brigham Envelope Company, $106.45; National Papeterie Company, $281.81; G. R. Rommel, $14,351; Eagle Pencil Company, $386.01; Calvert Lithographing Company, $102.68; Hampshire Manufacturing Company, $105.91; Wrenn Paper Company, $150.96; D. M. Bare & Co., $134.08; W. R. Brown, agent, $482.-45; West Virginia Paper Company, $156.-63; E. E. Pritchard, $414.52; E. Morrison Paper Company, $145.20; Reform School, $449.97; George and Marietta Addison, $966.36. Smaller amounts are due a number of other concerns. Mr. Addison has been well known as a contractor for Government supplies.

George J. Sicard, assignee for Henry A. Richmond, Buffalo, N. Y., who made a general assignment some time ago has filed his inventory of the assets and liabilities of the assignor. The summary shows a total of $58,287.39 of assets, of which the sum of $8,879.14 is given as doubtful. The liabilities amount to $149,510.26. It is stated that all of these assets, with the exception of $1,200 of real estate, are subject to a transfer made to the Bank of Commerce, securing commercial paper up to the sum of $70,000, of which amount the bank yet holds $44,546.88. The mortgage has been foreclosed since the assignment and the property was bid in by the bank. This property is also subject to an execution held by the Niagara Bank for $7,030.15. In his report the assignee states that the Bank of Commerce took possession of the debts, dues, accounts, notes and demands under a chattel mortgage, bill of sale and transfer executed by Mr. Richmond on December 26, 1895. Mr. Richmond receives one-fifth of the estate of the late Mary E. Richmond, of Batavia. One-fourth of this interest is to be paid to him in cash. The share of the estate to be paid Mr. Richmond in cash will not exceed the sum of $15,000. In the report of Mr. Sicard it is stated that the assignor and the White Paper Company, of Dayton, Ohio, exchanged their notes for mutual accommodation during 1895. Of the amount issued the Richmond Lithographing Company gave $49,799.84 and the White Paper Company $33,021.05, leaving a balance in favor of the Richmond Lithographing Company of $16,778.79.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, March 27, 1896.

THE MONEY MARKET.—The volume of business in the stock market was small, but a majority of the moving shares closed at lower figures. Call loans on stock collateral continued firm on a basis of 3½@4½ per cent., with a good demand. In the time money market there was much caution. Time loans are firmly held, but the business is small and confined to long contracts. Rates are 4 per cent. for thirty to ninety days, 4½ per cent. for four to five and 4½@5 per cent. for six months and for longer periods. Many of the larger banks are out of the market as buyers of commercial paper. There is moderate pressure of notes on the market, and rates are 5½@6 per cent. for sixty to ninety day indorsed bills receivable, 5½@6 per cent. for four months' commission house and prime four to six months' single names, and 6@7 per cent. for good names having the same time to run. The foreign exchange market was quiet but firm. Posted rates were $4.88 for sixty days and $4.89 for sight. Actual rates were $4.87¼ for sixty days and $4.88¼@4.88¾ for sight.

THE PAPER TRADE.—A mill in New Jersey and a jobbing house at Holyoke are among the failures of the week, but neither of them has any effect on the market here. The affairs of the Albion Paper Company have not yet been adjusted, and no call for another creditors' meeting has been issued at this writing. The directors of the National Pulp Board Company held their regular quarterly meeting in this city this week, but transacted only routine business. The market for the most part is quiet. There is a fair call for Writing and Book grades, and News is active, all of the mills having a plentiful supply of orders.

JUTE BUTTS.—The market continues undisturbed by business, paper makers not showing any interest in the situation.

WOOD PULP.—There is practically no change in the Ground Wood market. There is a steady call for supplies and prices are firm.

WOOD FIBRE.—Chemical Fibre is in fair call. Bleached Soda is quoted at 1.80@2½c. Domestic Sulphite is quoted at 1½@2¼c., as to quality, for Unbleached, and 3c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 1¾@2½c.; Bleached, same process, 2.30@3¼c.; Unbleached, sulphite process, 2.05 @ 2.55c.; Bleached, do., 3 @ 3¾c.; Bleached Straw Pulp, 3.80c. There were imported this week at New York 130 tons of Chemical Fibre, being 20 tons from Antwerp, 90 tons from Copenhagen, and 20 tons from Hull.

FOREIGN RAGS AND PAPER STOCK.—The market continues to be very quiet, and transactions are of a hand to mouth character, supplies going forward in quantities sufficient only for consumptive wants. Imports for the week aggregated 1,472 bales and 130 tons, being 354 bs. rags, 398 bs. papers, 130 tons chemical fibre and 720 bs. manillas. Ports of shipment and quantities are as follows: Antwerp, 20 tons chemical fibre; Copenhagen, 90 tons chemical fibre; Bristol, 304 bs. manillas; Glasgow, 132 bs. papers; Hull, 207 bs. rags, 20 tons chemical fibre; Leghorn, 106 bs. rags; Liverpool, 15 bs. rags, 60 bs. manillas; London, 266 bs. papers; 234 bs. manillas; Marseilles, 26 bs. rags; Stettin, 122 bs. manillas.

DOMESTIC RAGS.—There is only a moderate call for domestic stock, and the demand is not as brisk as it might be. Prices range at 3@3½c. for Whites and 2c. for Soiled Whites.

BAGGING, &c.—Not the slightest interest is shown in the market for Gunny, and the quotation of 75c. remains nominal. Manilla imports for the week aggregated 720 bales, being 304 bs. from Bristol, 60 bs. from Liverpool, 234 bs. from London and 122 bs. from Stettin.

OLD PAPERS.—Low grades continue in demand, but the market as a whole is not favored with a great deal of business. We quote: No. 1 Hard White Shavings, 2.15@2½c.; No. 1 Soft White do., strictly free from wood, 1.60c.; Soft White do., ordinary, 1¼c.; Old Ledgers, 1¾c.; Solid Printed Books, 1¼c.; Mixed Shavings, No. 1, 1@1½c.; Mixed Shavings, No. 2, ¾c.; Extra No. 1 Manillas, 90c.; No. 1 Manillas, ordinary, 75c.; No. 2 Manillas, 60c.; Light Book Stock, 60c.; Folded News (overissues), 50@55c.; Mixed Papers, 35c.; Commons, 25@30c.; Straw Clippings, 45c.; Binders' do., 45c.

STRAW.—Is firm. We quote: Long Rye at 75@95c.; Short Rye at 50@65c.; Wheat at 40@45c.; Oat at 45@50c.

ROSINS.—Pale grades are neglected, but low grades are moving fairly brisk. We quote: Common to Good Strained, $1.95@2; E, $2.02½; F, $2.05; G, $2.10; H, $2.15@2.17½; I, $2.25; K, $2.40; M, $2.60; N, $2.70; W G., $2.80@2.90.

CHEMICALS.—The market for paper makers' chemicals is quiet and without any special features. J. P. Brunner & Co. speak of the Liverpool market as follows: "Trade generally in chemicals is dull and depressed. Soda Ash—Some further resales are reported at low prices, but it is difficult to move anything. Quotations are more or less of a nominal character, and spot range for tierces may be called about as follows: Leblanc Ash, 48 per cent., £4@4 5s. per ton; 58 per cent., £4 5s.@4 10s. per ton, net cash. Ammonia Ash, 48 per cent., £3 2s. 6d.@3 10s. per ton; 58 per cent., £3 7s. 6d.@3 12s. 6d. per ton, net cash. Bags, 5s. per ton less. Soda Crystals quiet at £2 7s. 6d.@£2 10s. per ton, less 5 per cent. for barrels, and 7s. less for bags. Caustic Soda is in moderate demand, but firm, the spot range, according to market, being about as follows: 60 per cent., £6 5s.@6 10s. per ton; 70 per cent., £7 5s.@7 10s. per ton, net cash; 74 per cent., £8 5s.@8 10s. per ton; 76 per cent., £9 2s. 6d.@9 5s. per ton, net cash. Bleaching Powder very slow, and although hard wood packages are quoted at £7 5s.@7 10s. per ton, net cash, according to destination, these figures are quite nominal." In the local market Alkali is in light call; Caustic Soda is in small demand on spot, but there is better inquiry for forward lots. Sal Soda is not active, and Bleaching Powder is a shade stronger. During the week there were sales of Bleach at 1.85@1¾c.; Soda Ash at 1⅛c.; Soda Caustic, 2.20@2¼c., and Alkali at .90@1c.

CHINA CLAY.—The recent arrivals have been without influence on the market. There is only a moderate demand, and sales are principally of jobbing quantities. Prices are more or less nominal at $11@18 for English and $8@10 for domestic, according to quality and size of order.

TWINES.—There is a fair volume of business. We quote: Sisal Hay Rope, 5½c., Sisal Lath Yarn, 5c.; Jute Ready, 5@6c. Twines — Jute, 18, 10½@11c.; 24, 10@10½c.; 36, 9@9½c.; Jute and Hemp, 18, 13@14c.; 24, 12½@13½c.; 36, 12@13c.; Hemp, 18, 16c.; 24, 15½c.; 36, 15c.; Marlines, Jute, 4½, 9c.; 6, 8½c.; 8, 7½c.; Jute and Hemp, 6, 11c.; 8, 9c.; American Hemp, 4½ 14c.; 6, 13c.; 8, 12c.; Russian Hemp, 4½ 14c.; 6, 13c.; 8, 12c.

COAL.—The coal market is quiet, and prices are generally unchanged. The advance in soft coal, noted last week, has caused a somewhat better demand for steam sizes of anthracite.

EDWIN BUTTERWORTH & CO.,
MANCHESTER, ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp,
P 83 GUNNY BAGGING, &c.
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MANUFACTURED BY
H. WATERBURY & SONS CO.,
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The Largest Manufacturers of Paper Makers' Felts in the World.
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For WRITING and LEDGER PAPERS We warrant a felt equal to anything imported.

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Gilt Edge, Short Lap Leather.
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237 Market St., Philadelphia.
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PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.16	@	$0.21
Flat Caps, superfines	11½	@	14
Flat Caps, fines	11	@	13
Flat Caps, engine sized	7	@	9
Blotting, American	8	@	12
Blotting, English	17	@	....
Book, super sized and calendered	5	@	8
Book, super sized and tinted	5	@	8
Book, extra machine finish	5	@	....
Book, machine finish, low grade	4½	@	5
News	2½	@	3
Poster	3	@	....
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9¾
Colored papers, tissues, 20×30, ₱ ream	1.10	@	1.35
Tissues, black, 20×30, ₱ ream	1.40	@	1.50
White tissue, 20×30, ₱ ream	60	@	80
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6½	@	6¾
Manillas, No. 2	5	@	6
Manillas, Bogus	2½	@	3½
Wrapping Parchment	16	@	....
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	55	@	60
Hardware, light colored, No. 1	4½	@	....
Hardware, No. 1, glazed, tarred	4½	@	....
Hardware, No. 1, glazed	4	@	....
Binders' Boards, ₱ ton, No. 1	70.00	@	90.00
Binders' Boards, ₱ ton, No. 2	50.00	@	60.00
Strawboards, air dried, No. 1, ₱ ton	40.00	@	....
Strawboards, steam dried, No. 1, ₱ ton f. o. b. mill	....	@	....
Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets—			
36×40, from 38 to 42 lbs. ₱ rm	65	@	....
30×40, from 30 to 34 lbs. ₱ rm	....	@	52
24×36, from 24 to 26 lbs. ₱ rm	....	@	48
22×32, from 24 to 26 lbs. ₱ rm	45	@	....
30×50, 21 lbs., ₱ rm	....	@	34
20×30, from 14 to 17 lbs. ₱ rm	26	@	....
16×22, from 12 to 13 lbs. ₱ rm	23	@	....
18×28	....	@	24
15×20, 10 lbs. ₱ rm	....	@	17
15×20, from 7 to 8½ lbs. ₱ rm	....	@	13
14×18	....	@	12
12×16	....	@	11
11×15	....	@	10
Straw Wrapping, ₱ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ₱ lb., light weight	1¾	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12×18	....	@	14
14×20	....	@	18
Card Middles, ground wood	5½	@	6¼
Card Middles, long fibre wood	8¼	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	4¼	@	....
Mill Assorted Whites	3½	@	3¾
Unbleached Muslins	4½	@	4¾
City Whites, No. 1	3	@	3¼
New Seconds, light	2¼	@	....
New Seconds, dark	1¾	@	2
No. 2 Whites	¾	@	1.15
Cotton Canvas, No. 1	3	@	....
Linen Canvas, No. 1	....	@	2¼
Country Mixed, free of Woolens	60	@	....
Seconds (City)	....	@	....
Colors, ₱ 100 lbs	....	@	....
Manilla Rope	....	@	2
Manilla Rope, tarred	....	@	....
Gunny Bagging, No. 1	1.10	@	1.30
Mixed Bagging, No. 1	⅞	@	1
Burlap Bagging, No. 1	1.10	@	1.15
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1	@	....
Hemp Twine Stock	....	@	....
Jute Waste	¼	@	1¼

English Old Papers and Shavings.

Hard Shavings, No. 1	2	@	....
Soft Shavings, No. 1	2¼	@	2¾
White and Colored Shavings, No. 1	1¾	@	1¾
White and Colored Shavings, No. 2	1	@	1¾
Cream Post Shavings	2½	@	....
Paper Collar Cuttings	....	@	2
Briefs and Letters	1¾	@	1¾
Books and Pamphlets	1.10	@	....
Old Newspapers	....	@	....
Broken News and Letters	⅞	@	1
Old Blank Books	2¼	@	2¾
White and Buff Railway Sheets	1¾	@	....

Hamburg Rags, &c.

N S C, New Shirt Cuttings	....	@	4¼
S P F F F, No. 1 Linens	....	@	3¾
S P F F, No. 2 Linens	....	@	3½
S P F, No. 3 Linens	2	@	2¾
F G, No. 4 Linens	....	@	2
F F, No. 5 Linens	1¾	@	1.85
Extra Fine Blue Linen, light color	2	@	....
L F B, Blue Linens	2¼	@	....
C S P F F F, No 1 Cottons	....	@	3½
C S P F F, No. 2 Cottons	....	@	3¾
C S P F, No. 3 Cottons	1¾	@	....
C C C, Colored Cottons	....	@	75
C F X, Low grade Cottons	....	@	75
Extra Fine Blue Cottons	....	@	¼

Pulps and Fibres.

Ground Wood, domestic, delivered	....	@	1.35
Ground Wood, foreign, ex dock	....	@	....
Soda Fibre, domestic, unbleached	....	@	....
Soda Fibre, domestic, bleached	....	@	2½
Soda Fibre, foreign, unbleached	2.65	@	3
Soda Fibre, foreign, bleached	....	@	....
Sulphite, domestic, unbleached	1¾	@	2¼
Sulphite, domestic, bleached	3½	@	....
Sulphite, foreign, unbleached	2¼	@	3¾
Sulphite, foreign, bleached	....	@	....

Japanese Rags.

Blues, Hiogo, ex store	1.30	@	....

Chemicals, Coloring Materials, &c.

Alkali, 58 ₱ cent	1	@	1.20
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1¾	@	¼
Alum, Diamond	....	@	2¾
Alum, pearl	2¾	@	2¾
Alum, porous	2¾	@	2¾
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¼
Anti-Chlorine	....	@	2¾
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	1.95	@	....
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ₱ cent	2.30	@	2¼
Clay, China, English, ₱ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ₱ ton	9.50	@	10.00
Clay, Terra Alba, French, ₱ cwt	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9¾
Potato Starch	4½	@	4¾
Prussian Blue, dry	20	@	25
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ₱ bbl	1.95	@	2.00
Rosins, E, ₱ bbl	2.03½	@	....
Rosins, F, ₱ bbl	....	@	2.05
Rosins, G, ₱ bbl	2.10	@	....
Rosins, H, ₱ bbl	2.15	@	2.17½
Rosins, I, ₱ bbl	2.25	@	....
Rosins, K, ₱ bbl	....	@	2.40
Rosins, M, ₱ bbl	2.60	@	....
Rosins, N, ₱ bbl	....	@	2.70
Rosins, W G, ₱ bbl	....	@	2.80
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ₱ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ₱ cent	1.57½	@	1.70
Soluble Blue	40	@	50
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2½
Sulphuric Acid, 66 ₱ cent	1	@	1¾
Ultramarine, blue	14	@	17½
Venetian Red	1	@	1¾
Vitriol, blue	5½	@	5¾
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	3½	@	3¾
No. 2 Whites	1¾	@	2
Common Seconds	....	@	2
Thirds and Blues	1	@	1¼
Southern Mixed Rags	40	@	75
Colors, country	½	@	⅝
Colors, city	25	@	30
New Calicoes, light	1¾	@	1¾
New Calicoes, dark	1	@	1¼
Shirt Cuttings, best	3¾	@	4
Shirt Cuttings, good	3¼	@	3¼
Shirt Cuttings, unbleached	3½	@	3¾
Shirt Cuttings, unbleached No. 2	2	@	2¼
Shirt Cuttings, cheviots	2¾	@	2¾
Overall Cuttings, blue	2¼	@	2¾
Overall Cuttings, brown	1¾	@	1¾
Shoe Rags, bleached	3¼	@	3¾
Shoe Rags, unbleached	3¼	@	3¾
Shoe Rags, brown	2¾	@	2¾
Cotton Flannels, bleached	3	@	3¼
Cotton Flannels, unbleached	3½	@	3¾
Corset Rags, drab	3¼	@	3¾
Corset Rags, white	4	@	4¼
Tailors' Seconds	1½	@	1¾
Tailors' Colors	20	@	25
Cotton Canvas	2¼	@	2¾
Cotton Canvas, No. 2	1¾	@	1¾
Linen Canvas	1½	@	1¾
New Canvas Cutting	3½	@	3¾
Insole Canvas	3	@	3¼
Print Papers, best	25	@	....
Folded News	40	@	45
Old Waste Papers	25	@	30
Manilla Paper, No. 1	75	@	85
Manilla Paper, good mixed	60	@	65
Manilla Paper, blues	50	@	....
Mixed Book Stock	95	@	1.00
Books and Pamphlets	1.10	@	1.20
Book Stock, light	50	@	75½
Ledgers and Letters	1¾	@	1⅞
Soft Book Shavings	1¾	@	1⅞
Hard White Book Shavings	2¼	@	2
Leather Board Chips	70	@	75
Straw Chips	35	@	40½
Shivey Bagging	1½	@	1
No. 1 Factory Bagging	75	@	85
Burlap Bagging	75	@	85½
Burlap Bagging, large pieces	1⅞	@	2¼
Kentucky Bagging	1	@	1¼
Mixed Bagging	½	@	⅝
No. 2 Bagging	½	@	⅝
Shakings, soft	½	@	⅝
Tarred Shakings	1	@	1⅛
Standing Rigging	2½	@	2½
Standing Rigging, foreign	2½	@	2
Bolt Rope	2	@	2.06½
Oakum Junk, No. 2	1½	@	1½
Tarred Paper Junk	1½	@	1⅝
Tarred Paper Junk, inferior	½	@	⅞
Manilla Rope	1¼	@	1½
Tarred Manilla	1½	@	1¾
Hemp Strings	1	@	1
Sisal Strings	1.10	@	1.20½
Wool Strings	½	@	¾
Flax Tow	½	@	¾
Flax Waste	½	@	....

Chemicals.

Alkali	95	@	1.00
Aluminous Cake, currency	1¼	@	1½
Alum, American ground	1.75	@	1.80
Alum, American lump	1.65	@	1.70
Anti-Chlorine	2	@	2½
Bichromate Potash	10	@	10½
Bleaching Powder	1¾	@	2
Caustic Soda, 74 ₱ cent	2¼	@	....
Clay, English, ₱ ton	13.00	@	17.00
Clay, American, ₱ ton	10.00	@	11.00
Copperas, ₱ lb	45	@	50
Extract Logwood	5½	@	10½
Lime, Rockland, ₱ bbl	85	@	90
Prussian Blue, ₱ lb	26	@	28
Prussiate Potash, yellow	19½	@	21
Prussiate Potash, red	36	@	37
Rosin, common strained, ₱ bbl	1.90	@	2.50
Rosin, Medium	2.80	@	3.00
Rosin, extra pale, ₱ bbl	3.00	@	4.50
Sal Soda, ₱ lb	65	@	72½
Soda Ash, 48 ₱ cent. caustic	1.30	@	1.50
Soda Ash, 48 ₱ cent. carbonated	....	@	....
Soluble Blue	2.50	@	3.50
Sugar Lead, white	8¼	@	....
Sugar Lead, brown	5¼	@	5½
Sulphuric Acid, 66°	¾	@	1¼
Terra Alba, ₱ ton	9.00	@	15.00
Ultramarine, ₱ lb	7	@	25
Venetian Red, ₱ lb	1½	@	2½
Vitriol, Blue	3½	@	3¾
Yellow Ochre	½	@	1

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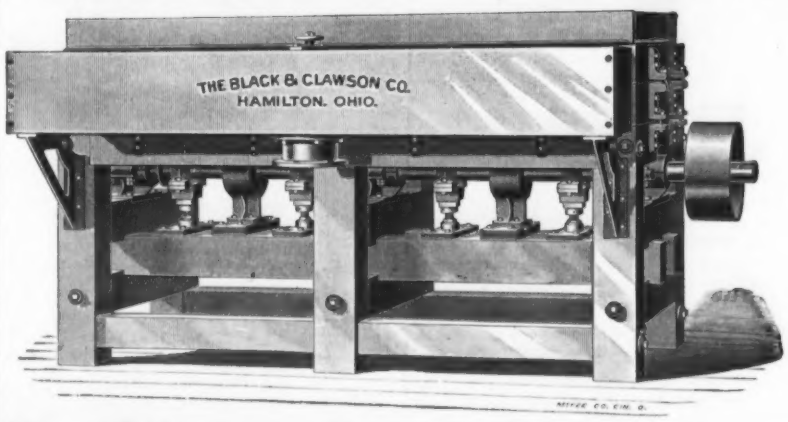

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One 86 inch Rice, Barton & Fales machine; gun metal press and couch rolls; fifteen iron dryers; calenders, reel and cutter complete.
One 80 inch Rice, Barton & Fales machine, Fourdrinier, with 40 foot wire; gun metal couch and press rolls; twenty 36 x 76 inch dryers; calenders, reel, slitters and Manning winder.
One 72 inch Rice, Barton & Fales Fourdrinier, with 40 foot wire; gun metal couch and press rolls; seventeen 36 x 68 inch dryers; two stacks of calenders; reel, slitters and Manning winder.
One 86 inch double cylinder machine; gun metal press rolls; seventeen 36 x 84 inch iron dryers; calenders, reel and cutter, with slitters complete.
One 74 inch Fourdrinier machine; gun metal press and couch rolls; eight iron dryers, 36 x 72 inches; calenders, reel, cutter, slitters and winder complete.
One 76 inch double cylinder machine, with gun metal press rolls; eight iron dryers, 36 x 72 inches; calenders, reel, cutter, slitters and winder complete.
One 57 inch double cylinder machine; iron press rolls; seven iron dryers, 36 x 57 inches; calenders, reel and cone cutter complete.
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My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me July 23, 1889, No. 407,641, covering a beating engine for paper pulp, with a revolving bed plate. This is to notify all such persons, whether manufacturers or users of said engines, that any infringement of said patent will be prosecuted to the full extent of the law.
EDWARD CONLEY, Patentee. Boston, Mass.

TREASURY DEPARTMENT, OFFICE OF the Commissioner of Internal Revenue, Washington, D. C., March 20, 1895.—Sealed proposals for furnishing paper to be used for Internal Revenue stamps for the fiscal year ending June 30, 1897, will be received at this office, from manufacturers of paper only, until the 23d day of April, 1895, at 1 o'clock P. M. Bidders are required to submit with their bids samples of the paper which they propose to furnish. Full information upon the subject will be given, or transmitted by mail in circular form, upon application to this office. Proposals should be addressed to the "Commissioner of Internal Revenue" and marked "Proposals for Internal Revenue Stamp Paper." The Commissioner reserves the right to reject any and all bids. JOS. S. MILLER, Commissioner

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Office: Newark, N. J.

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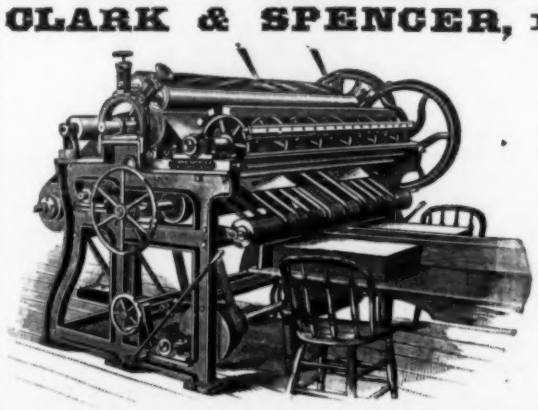

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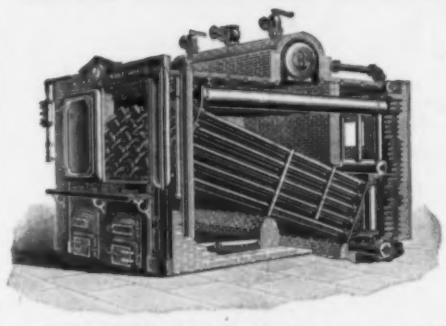

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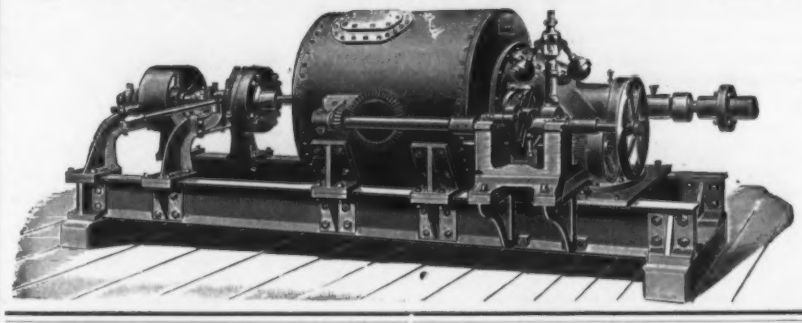


CYLINDER OR REGISTER **GATE.**

INSURING HIGHEST PERCENTAGE OF USEFUL EFFECT AT

FULL AND PARTIAL GATE.

TESTS IN HOLYOKE FLUME.

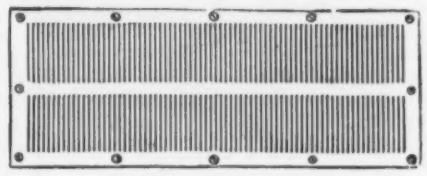
SIZE WHEEL.	HEAD IN FEET.	HORSE POWER.	PER CENT. OF USEFUL EFFECT.
15 inch	18.06	30.17	.8962
17½ inch	17.96	36.35	.8930
20 inch	18.21	49.00	.8582
25 inch	17.90	68.62	.8584
30 inch	11.65	52.54	.8676
35 inch	17.29	133.19	.8497
40 inch	16.49	148.93	.8253
48 inch	15.51	179.29	.8202

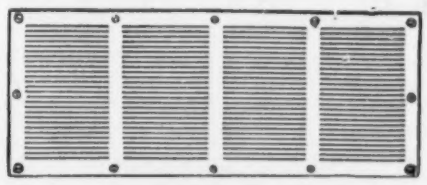
STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO

THE STILWELL-BIERCE & SMITH-VAILE CO., DAYTON, OHIO, U. S. A.

ANNANDALE *Screen Plate Co.,*

PATERSON, N. J.





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SCREEN PLATES.

Our new Plates are made of the

VERY BEST METAL,

and for price and durability cannot be surpassed.

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MANUFACTURER OF

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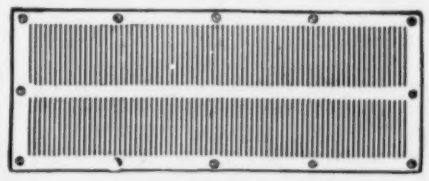
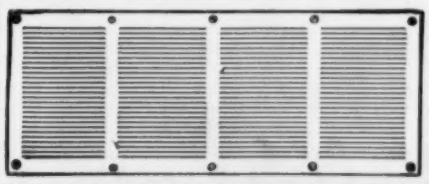




OF BRASS OR CAST METAL,

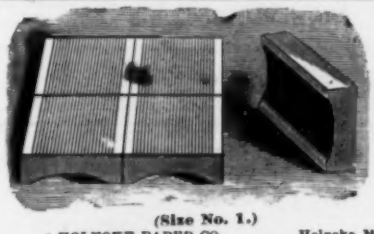
AT PRICES

THAT CANNOT BE SURPASSED.

BEST STOCK USED.

Write for Prices and Gauges.

All Work Warranted.



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HOLYOKE PAPER CO.,	Holyoke, Mass.
PARSONS PAPER CO.,	Holyoke, Mass.
BYRON WESTON,	Dalton, Mass.
BREMAKER & MOORE,	Louisville, Ky
KIMBERLY & CLARK CO.,	Appleton, Wis.
ALEX. BUNTEN & CO.,	Montreal, Can.
PATTEN PAPER CO.,	Appleton, Wis.
MORRISON, BARE & CASS,	Tyrone, Pa.

And many others.

SAMUEL SNELL,

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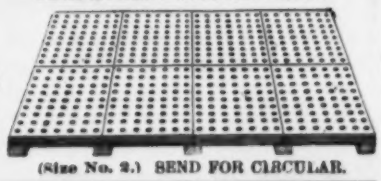
MANUFACTURER OF

FILTERING STONES,

Under the KLARY and SNELL Patents.



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FIDELITY STEAM TRAP.

BEST IN THE WORLD.

Made for High and Low Pressure expressly for

PAPER MILLS.

Sent on thirty days' trial. Guaranteed for one year.

MADE BY THE VAN AUKEN STEAM SPECIALTY CO.,

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AN IDEAL BELT

COMBINATION DYE HOUSE BELTING

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FOR PAPER MILLS AND DYE HOUSES.

Leather driving surface.
Rubber protection outside.
Write for Samples and Prices.

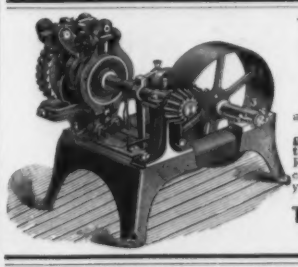
NORWICH BELT MFG. CO.,

Norwich, Conn.

OSTRANDER DIGESTER BRICK.

From blue prints of digesters we design and manufacture, in a special department, complete linings of our famous **ACID PROOF BRICK** in special shapes, each course of which has a distinctive stamp that indicates its position in the lining. This department is under the direction of a chemist who has had practical experience in a sulphite mill. **WE SOLICIT CORRESPONDENCE.**

Ostrander Fire Brick Co., TROY, N. Y.



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Governed for Paper and Pulp Mills and Electrical Work.

The limit of government of water power is often determined by the design and construction of plant. Consult us if possible before completing your plans. With **OUR COMPOUND REGULATORS** we will undertake and **guarantee** the government of water power **for all purposes,** including **Electric Railway, Power and Lighting Plants.** We make and sell all of Replogle's Electrical and Mechanical Governors and other devices for the government of water power. Expert advice furnished on application. If results of your present system are not satisfactory write us. Address all inquiries to

THE REPLOGLE GOVERNOR WORKS, Akron, Ohio.

MARK A. REPLOGLE, Chief Engineer.

STOCK'S IMPROVED XVLITE LUBRICATING COMPOUND.

This Lubricant as a friction reducer has no equal, especially on Paper Mill Machinery. It is in use in about 200 mills. This Lubricant is applied by the maker on a twenty day trial, allowing the mill manager to judge of its merits before purchasing. I here give a few names, viz.

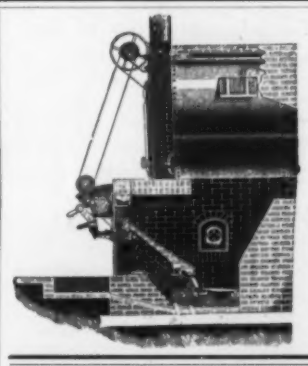
CONSUMERS PAPER CO.,	Muncie, Ind.
HARTFORD CITY PAPER CO.,	Hartford City, Ind.
GEO. FRIEND PAPER CO.,	West Carrollton, Ohio.
EAGLE PAPER CO.,	Franklin, Ohio.
MICHIGAN WOOD PULP CO.,	Niles, Mich.
THE L. SNIDER SONS CO.,	Hamilton, Ohio.

I will be pleased to receive communications from mill managers, and to apply it on approval. Address

Q. B. STOCK, P. O. Box 1069, CHICAGO, ILL.

FACTORY: 2450 ARCHER AVENUE.

N. W. TAYLOR. H. H. CAMPBELL.



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648 Broadway, CLEVELAND, Ohio,

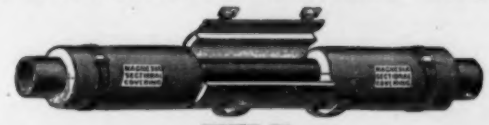
SOLE MANUFACTURERS OF THE

Brightman Mechanical Stoker

FOR STEAM BOILERS.

THE MOST ECONOMICAL IN FUEL and the Best Device in the World for Preventing Smoke.

MAGNESIA SECTIONAL COVERINGS UNEXCELLED.



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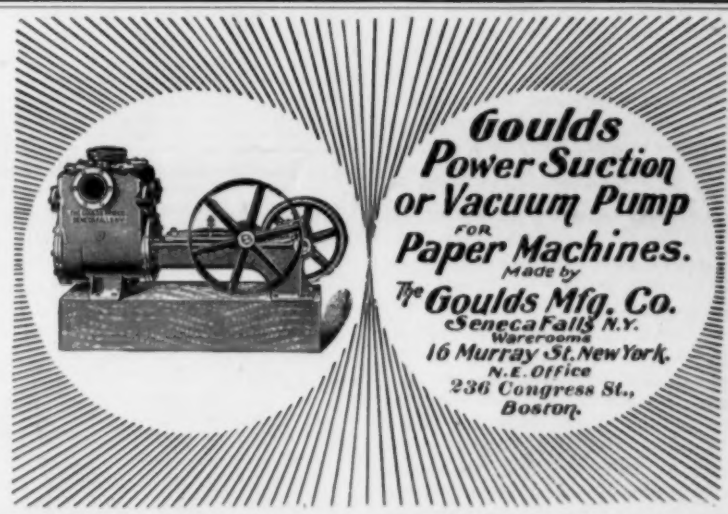
The Chicago Rawhide Mfg. Co., RAWHIDE BELTING,

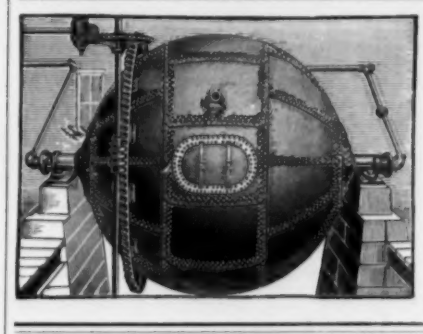
MANUFACTURERS OF

Lace Leather, Rope, Washers and other Rawhide Goods of all kinds. By Krueger's Patent.

The Mabbs Hydraulic Rawhide Packing. Extra Heavy Lace Leather a Specialty.

75 & 77 OHIO ST., near Market St., CHICAGO. BOSTON STORE: 191-193 High St.





THE BIGGS BOILER CO.,

AKRON, OHIO,

MANUFACTURERS OF

Rotary Globe and Cylinder BLEACHING BOILERS

FOR STRAW AND OTHER PULP.

Also Steam Boilers and all kinds of Sheet and Heavy Boiler Iron Work for Paper Mills a Specialty.

Correspondence solicited. Send for Catalogue.

CHAS. M. JARVIS, Pres't and Chief Engineer. F. L. WILCOX, Treasurer.
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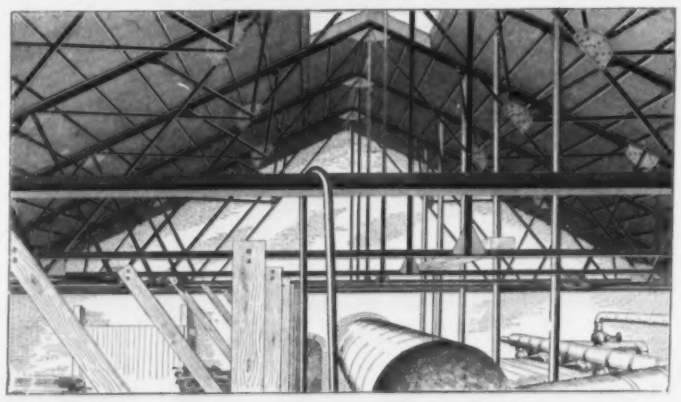
THE BERLIN IRON BRIDGE CO.,

Engineers, Architects and Builders of Iron and Steel Structures.

SEND FOR ILLUSTRATED CATALOGUE.



THE above illustration is taken direct from a photograph, and shows the construction of an iron truss roof, designed and built by us for the Orono Pulp and Paper Co., at Bangor, Me. The building is used as a boiler room, where the danger from sparks is very great, especially where wood is used for fuel. The trusses, purlins and covering are entirely of iron, no woodwork being used about the building in any way, shape or manner, so that the building is absolutely fireproof.

OFFICE AND WORKS: EAST BERLIN, CONN.

Manufacturing News.

EASTERN STATES.

In anticipation of the pulp and paper mill to be built at Milton, Vt., this summer, H. Donehue & Co. have bought of John Murray about 500 acres, known as the Barnum Place, for the sum of $4,800.

There was sent out from Otis Falls, Me., on March 13 a special train loaded with 400 tons of fine paper for St. Louis and Cincinnati. This is said to have been one of the largest single shipments of paper ever sent out of the State.

It is reported that New York parties are negotiating to build a big pulp and paper mill at Skowhegan, Me.

The Berlin Iron Bridge Company, East Berlin, Conn., has a contract with the Carteret Steel Company, Carteret, N. J., for a steel frame to support the furnaces which are to be placed in the new iron building which the Berlin Company is erecting for it.

MIDDLE STATES.

The Little Falls Paper Company, Newburgh, N. Y., has put in a 250 horse power Corliss engine, made under the Dixon patent by the Wright Engine Works, Newburgh, N. Y., and it has also ordered of the Emerson Manufacturing Company, Lawrence, Mass., a 2,000 pound beating engine.

The engine house of the York Wall Paper Company's plant is finished and is said to be the finest in the State. It is 54x16 feet and is lined with ash and poplar. The floor is of North Carolina pine, 2½ inches thick. The equipments consist of a 150 horse power Putman engine, a Cockran feed water heater and purifier, and a Lock damper regulator.

H. C. Raynolds, who bought the Eden Mills property at Whippany, N. J., some three weeks ago from Patrick Farrelly, has sold the same to the Eden Mills Paper Company, for the manufacture of tissue papers. At a recent meeting of the stockholders, the following named officers were elected; President, James J. Allen; vice-president and secretary, H. C. Raynolds; treasurer, W. H. Warren. The product of these mills has long been favorably known in the trade, because of the superior quality of spring water which flows from a number of bubbling springs on the property. The mills are also connected with the Lackawanna Railroad system by means of spurs which run to the stock and boiler houses and finishing rooms, reducing the cost of handling all crude material and finished product to a minimum figure.

The Ingrain Interlining Company is putting up finishing rooms adjoining the plant of the Susquehanna Water Power and Paper Company, of Harford County, Conowingo, Md.

The Ohio and Indiana Butter and Egg Shippers' Association, which met at Fort Wayne, Ind., on March 18, adopted resolutions indorsing the project of the Iowa Association. This plan is to organize a strawboard manufacturing company to furnish fillers to the produce trade at reasonable figures.

The Michigan Peninsular Car Company, Detroit, Mich., has placed a contract with the Berlin Iron Bridge Company, of East Berlin, Conn., for a new foundry building 160 feet square. This building will be one story high, having a steel framework throughout, and is said to be so designed that the lower chords of the trusses will support runways extending the whole length of the building. These runways will carry trolleys having a capacity of 2,000 pounds. By means of these overhead trolleys the molten metal will be conveyed quickly and easily from the cupolas to any part of the casting floor.

WESTERN STATES.

The Stilwell-Bierce and Smith-Vaile Company, Dayton, Ohio, is figuring for the installation of a complete plant for a ground wood mill with a capacity of 100 tons per day. The details of the plant have not yet been made public.

CANADA.

It is proposed to construct another water power canal at Sault Ste. Marie, Ont. It is said that the needed capital for this purpose can be procured.

An action has been brought by the Bagley & Sewall Company, Watertown, N. Y., against the stockholders of the Globe Paper and Fibre Company to collect its debt, on the ground that the stock was never fully paid up as required by law. This action has been brought on behalf of all creditors similarly situated who will co-operate in its prosecution, and it is stated that all other actions begun against the stockholders of the Globe Paper and Fibre Company have been enjoined. The amount of stock assessable to pay debts is $266,900, and it is proposed to call upon the stockholders of the Globe Paper and Fibre Company to contribute up to the par value of their stock to meet the obligations of the concern.

Fires.

The *Leader* printing office, Davenport, Ia., was damaged by fire on March 24. Loss, $6,000.

Morris White, paper stock, &c., dealer, Troy, N. Y., has had a fire loss of $4,000. No insurance.

Scott, Forseman & Co., book publishers, Chicago, Ill., were damaged by fire March 25. Loss small; insurance, $6,000.

The paper box factory of Jacob Zippel, Newark, N. J., was damaged by fire on March 22. Loss, $12,000; insurance, $7,500.

Dickson & Laidlaw, stationers, 12 East Forty-second street, New York, were damaged $2,000 by fire on March 24. The Art and Commercial Printing Company, located in the same building, lost $1,000.

The copper smelting department of the Pennsylvania Salt Manufacturing Company, at Natrona, Pa., was burned on March 21. Loss, $100,000; covered by insurance. The production of paper makers' alum is not at all interfered with, as the flames did not even touch the part of the works devoted to that branch.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Geo. R. Bachelder, Lowell, Mass.	$542
Priest Brothers, Providence, R. I.	2,500

MIDDLE STATES.

H. L. Fuchs, New York city (B. S.)	500
Geo. W. Van Brunt, New York city (B. S.)	250

WESTERN STATES.

E. K. Foster (et al.), Los Angeles, Cal.	1,000
Smith & Mennecke, Aurora, Ill.	200
Robert J. Brown, Venice, Ill. (R.)	280
D. E. McMullin, Alvord, Ia.	153
E. G. Erwin, Boone, Ia.	175
Harry A. Carson, George, Ia.	600
W. E. Cherry, Red Oak, Ia. (B. S.)	2,000
Ohmit Brothers, Sioux City, Ia.	376
L. S. Carter (Mrs.), Wichita, Kan.	215
Barry & Co., Detroit, Mich.	300
Moffett, Thurston & Plank Printing Company, Minneapolis, Minn.	—
C. M. Osborn, Lincoln, Neb.	310
Bowersox & Kemmerling, Cleveland, Ohio	300
L. P. Olds (L. P. Olds & Son), Springfield, Ohio (Real)	2,000

SOUTHERN STATES.

Booth & Kilber Decorative Company, St. Louis, Mo.	1,554
Bowman-Long Office Supply Company, St. Louis, Mo. (T. D.)	4,104
K. P. Brockman, St. Louis, Mo. (B. S.)	1,000
Aug. W. Schuerman, St. Louis, Mo. (B. S.)	1,500

DISTRICT OF COLUMBIA.

Alex. P. Beatty, Washington, D. C. (T. D.)	80
Terry Brothers, Washington, D. C. (T. D.)	230

CANADA.

Ed. J. Armstrong, St. John, N. B. (B. S.)	2,000

LIENS DISCHARGED.

B. G. Price, Walterboro, S. C. (Real)	200
J. C. Campbell & Co., Toledo, Ohio	740

Accidents.

John Vingler was severely scalded about the head and legs by escaping steam at John Lang's paper mill, Philadelphia, Pa., on March 24.

Edward Snow, a back tender at the Webster Paper Company's mill, Orono, Me., was recently stabbed by Joseph Adams, a paper maker with whom he was scuffling. The knife entered two inches below the heart and made a wound an inch deep. It is thought that he will recover.

Personals.

George F. Perkins and family returned from a Southern trip this week.

R. H. Overton, of R. H. Overton & Son, is now on a trip to North California.

Minotte E. Chatfield, proprietor of the Chatfield Paper Company, New Haven, Conn., has returned, greatly improved in health, after a three weeks' visit to Florida and the West Indies.

Keppele Hall, son of John A. Hall, of the Union Mills Paper Manufacturing Company, will be married to Fanny Southard Hay at high noon, on April 2, in Trinity Church, Trenton, N. J.

Mary, only daughter of James Symington, of James Symington & Co., Beltonford Paper Works, Lancaster, Pa., will be married to Charles Walsh, a prominent merchant of that place, on March 31.

Tariff Decisions.

The Board of General Appraisers has decided the following case:

R. F. Downing & Co. et al. *v.* Collector at New York.—Metal red, alizarine colors and alizarine lakes and ultramarine blue. All of them were assessed at 25 per cent. under paragraph 48. The metal red was claimed to be dutiable as vermilion red at 6 cents per pound, under paragraph 45; the alizarine colors to be free, under paragraph 368, and the ultramarine blue to be dutiable at 3 cents per pound, under paragraph 45. The assessment on metal red was affirmed; as to the alizarine colors and alizarine lakes and ultramarine blue, the protest was sustained.

Obituary.

FRANCIS DIAMENT.

Francis Diament, of the blank book manufacturing firm of Francis Diament & Co., was buried on Saturday afternoon, March 21, from his residence, 663 North Twelfth street, Philadelphia, Pa. Services according to the usage of the Society of Friends were held at the house, when addresses were made by William H. Jackson, of New York; Lydia Price and Harriet S. French, M. D. The interment was in Fairhill Cemetery. The pallbearers were James Hogan, Edward Magill, Charles Shoemaker and Walter Chance. Mr. Diament died on Wednesday March 18.

Mr. Diament was born at Cedarville, Cumberland County, N. J., seventy-three years ago. In early life he learned the blank book manufacturing business, and afterward carried it on in Fifth street, near Arch street, Philadelphia. He subsequently removed the factory to Church street, where he was in partnership with John H. Cossart.

On June 16, 1851, Mr. Diament married Elizabeth Cadwalader, of Bucks County, who, with two of their seven children, Albert L. Diament, of Devon, and Millie H. Diament, survives.

Mr. Diament for many years took a great interest in the Rosine Home, of which Mrs. Diament has been treasurer for the past forty-two years.

C. B. TURTON.

Charles B. Turton, of the C. B. Turton Company, New York, after a short illness died of pneumonia on March 23, at his home, 128 State street, Brooklyn, N. Y. Before Mr. Turton was born, his father, John Turton, who for many years lived at Sands Point, L. I., had established the predecessor of the present firm, on Front street, New York. This was over forty years ago, and he was engaged in the naval stores business, which included the sale of rosins used by paper and other manufacturers. When he died in 1879 the business was continued by his sons under their father's name for about ten years, when the style was changed to C. B. Turton, under which it was continued for about two years. Four years ago, or thereabouts, Mr. Turton turned it into a stock concern, called the C. B. Turton Company, which did business at 133 Maiden lane, New York, and in the conduct of which he had the association of his brothers, E. S. and John Turton, and of which he was treasurer. These brothers survive, and will continue the business of the firm, which was engaged in the export as well as in the domestic trade.

Mr. Turton was born at Great Neck, L. I., thirty-two years ago. He was unmarried. The funeral was held from St. George's Church, Flushing, L. I., on March 25, and on the same day the remains were buried in the family plot at Manhasset, L. I.

FREDERICK WILEY.

Frederick Wiley died at his residence in Schaghticoke, N. Y., on Sunday, March 22. He was born in the town of Pittstown sixty-three years ago, being the third son of William and Ann Wiley. He received a good common school education, and then attended the academy at Charlotteville and graduated at the Fort Edward Institute. He followed teaching for some time. Mr. Wiley became engaged to and married Hester Baucus, daughter of James A. Baucus, of Schaghticoke. Afterward he purchased a farm adjoining his father-in-law's, where he was successfully engaged for several years as a farmer.

Twenty-three years ago he removed to the village of Schaghticoke, purchasing with David Button two paper mills and a coal interest, making the firm of Wiley & Button, in which he remained until his death. He was supervisor of the town of Schaghticoke for several terms, and was noted for his ability in the board. He had held every place of honor that his townsmen could give him, and was at the time of his death justice of the peace of the town, which position he had filled several terms. He was also chairman of the board of trustees of the Methodist Church, of which he was a highly respected member. Mr. Wiley was a prominent member of the board of education. He was always interested in the improvement of the village and town, for which purpose he gave his time and money freely. He was respected by all classes and conditions. He is survived by his wife, one son, of the firm of Wiley & Viall, of Schaghticoke, and one daughter, the wife of Rev. Dr. J. H. Coleman, of Albany, presiding elder of the Albany district. The funeral took place from his late residence, with public services at the Methodist Church, on March 25, and the interment was at Elmwood Cemetery.

Alfred Mason Williams, for sixteen years on the staff of the *Journal*, Providence, R. I., died at Basse Terre, St. Kitts, W. I., on March 9. He was a lineal descendant of Roger Williams, and was born in Taunton about 1840.

Lorin Hosley, bookbinder, Fitchburg, Mass., died on March 17. He leaves a widow and an adopted daughter.

A. Bourgoin, bookseller and stationer, San Francisco, Cal., is dead.

In Town.

Col. J. W. French, Three Rivers, Mich.; G. R. Stewart, Marion, Ind.; E. B. Dennison and C. A. Brown, Portland, Me.; T. S. Safford, Camden, N. J.; G. W. Knowlton, Watertown, N. Y.; Warren Curtis, Palmer's Falls, N. Y.; George West and D. W. Mabee, Ballston Spa, N. Y.; Alex. Robertson, New London, Conn.

General Notes.

The sheriff has levied on the Eldora Paper Company, Eldora, N. J., on an execution issued at the instance of George W. Beckensheets, Philadelphia, Pa., whose claim is $9,629.

The Commissioner of Internal Revenue invites proposals for furnishing paper to be used for the internal revenue stamps for the year ending June, 1897. Bids will be received until April 22.

The H. Channon Company, 24 and 26 Market street, Philadelphia, Pa., is preparing a book on rope transmission, which will soon be off the press. It has been prepared with great care by an expert in this line. It will contain many points on driving power by means of rope, which will be of special value. Engineers and others interested in rope transmission

The "Hamilton" Felt.

"Best and Most Economical Made."

The Longest Runs

are always made with the "Hamilton." Once accustomed to its use, you will buy no other. Prices as low as inferior makes are sold at.

In ordering, mention kind of stock used, quality of paper made and speed of machine.

SHULER & BENNINGHOFEN,
HAMILTON, OHIO.

Ventilating Fans,
Paper Dryers,
Heating Apparatus,
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AMERICAN BLOWER CO.,
SUCCESSORS TO
BUFFALO FORGE CO.,
Detroit, Mich.
SEND FOR CATALOGUE.

The W. S. Tyler Wire Works Co.,
CLEVELAND, OHIO.
MANUFACTURERS OF
FOURDRINIER WIRES,
Cylinder Faces and Washer Wires.

THE GENERAL FIRE EXTINGUISHER COMPANY,
CONTROLLING THE INVENTIONS AND APPARATUS
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MANUFACTURERS OF
Paper Mill Machinery,
JORDAN and BEATING ENGINES,

IRON OR WOOD TUBS, LAID OR STEEL BARS AND KNIVES. BED PLATES AND JORDAN FILLINGS OF EVERY DESCRIPTION A SPECIALTY. Correspondence solicited.

may receive a copy of the book as soon as issued upon sending their names and addresses.

R. F. Ware, manufacturer of paper tubes for mailing purposes, New York, has removed to the Shaw Building, 108 Park row, near Duane street.

The sheriff has received an additional attachment against the Bemis Publishing Company, 13 Astor place, New York, for $4,000 in favor of Charles N. Taintor, on four notes of the company.

A. H. Clark, dealer in stationery, paper hangings, &c., Denison, Tex., has made a deed of trust to Hugh Perry, as trustee, to secure creditors, some of which are preferred. Liabilities, $4,500; assets, said to be $9,000.

The Manufacturers Advertising Bureau, Benjamin R. Western proprietor, which has been located for a number of years at 111 Liberty street, New York, will remove about April 15 to more commodious quarters at 126 Liberty street.

Wm. M. Wilson's Sons, merchandise brokers and commission merchants, Philadelphia, Pa., have removed from 122 Arch street, Philadelphia, to 225 Dock street, same city, where they have enlarged facilities for their increased business,

The Boston Belting Company will remove its New York office to 100 and 102 Reade street, where it will occupy the ground floor, basement and sub-basement, carrying a complete stock of its manufactures. It expects to have one of the handsomest mechanical rubber goods stores in the city of New York. This change is made in order to give the company increased facilities. The well-known high standard of the goods made by this company will be maintained, and the company announces that the prices will be such as will make these goods the best value of any of their line in the market.

Winding Steam Pipe with Wire.

The plan of winding steam pipes over 8 inches in diameter with three-sixteenths of an inch copper wire, thus nearly doubling the bursting pressure, is pronounced by competent judges to be an important change in engineering practice. Further, that the thickness of sheet copper forming the pipe may be reduced to the minimum, and at the same time insuring the full advantage of wire winding, an improved system of manufacturing steam pipes has been devised, described as consisting in simply using copper of the thinnest possible gauge to form the interior or core of the pipe, while the body proper is composed of steel wire wound closely around the core, the interstices being filled in solid with copper by electro-deposition. Increased strength comes from wire winding.—*Boston Journal of Commerce.*

A Paper House.

An eating house made of paper has been erected in the port of Hamburg. Its walls are composed of a double layer of paper stretched on frames and impregnated with a fire and waterproof solution. A thin wooden partition affords further protection against the inclemency of the weather. The roof and walls are fastened together by means of bolts and hinges, so that the entire structure may be rapidly taken to pieces and put up again. The dining room itself measures 30 metres by 6 metres, and is capable of accommodating about 150 persons. There are twenty-two windows and four skylights, and the heating is effected by a couple of isolated stoves. A side erection contains the manager's offices, kitchen, larder and dwelling rooms. The total cost of the construction is said to have amounted to 1,500 marks, or $375.

Belts should be run with a slight waving motion, which should show on their slack side; it evidences slight tension and allows belts to naturally wear out. Swaying of belts is often caused by pulleys not being exactly in line, unevenness of leather in thickness along their edges, and want of balance. The edges of belts should be tight against pulley while they are standing still.

If a boiler is one of a battery, so that the pressure can be kept up with other boilers while this is being cleaned, or if the cleaning can be done at noon or during a let-up, allow the fire to burn low and then rake it to one side or end of the furnace, then push the clean portion to the other end or side, pulling out the clinker in the meantime. Finally distribute what is left over the grate, sprinkle as much new coal over it as it will readily ignite and open the damper and ash pit doors. If the cleaning is to be done while running and depending upon the boiler for pressure, you can probably do no more at a time if the boiler is worked hard than to slice the fire, break up the clinker, possibly rake out a few of the largest and redistribute it upon the grate. The boiler will suffer least if you close the damper when the furnace door is open.—*Power.*

Conditions of an Insurance Policy.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

Most merchants and manufacturers protect themselves and their creditors by carrying insurance upon their stocks of merchandise and factories, and, as a matter of general interest to the readers of THE PAPER TRADE JOURNAL, attention is called to a recent decision, where one was protected by the courts against the unjust claims of an insurance company—after it had received its premiums, and a loss by fire had occurred—that the conditions of the policy had been violated by keeping upon the premises inflammable substances, although the same were used in the conduct of the business connected with the stock of goods covered by the policy.

The evidence showed that the merchant, a jeweler, kept in his store a small quantity each of kerosene and benzine—of the former, all told, including that in lamps, about a gallon; of the latter, about a pint or a little more. No part of either was destroyed by the fire. The company objected to any evidence, either as to the custom of the trade in keeping such substances or that they were necessary to the conduct of the business, on the sole ground that keeping them was contrary to the provisions of the policy, and that no recovery could be had by reason of such violation.

The Supreme Court of Georgia (Maril *v.* Connecticut Fire Insurance Company, 23 S. E. Rep., 463), said: "The question to consider is whether the testimony offered was competent. The contract of insurance was in writing, and the rule of law is that parol evidence is inadmissible to add to, take from, or vary the terms of an unambiguous written contract, and the kindred rule is that, if the written instrument appears from its terms to be so ambiguous as not fully to express the contract between the parties parol evidence is admissible to explain such ambiguity. If the agreement is full, explicit and unambiguous it must be taken as conclusively representing the real contract between the parties, and neither will be permitted by parol to in any manner vary its terms. If for want of fullness of statement the contract be indefinite or uncertain parol evidence is admissible to explain and so illustrate it as to make the real intention of the parties apparent."

The court continued: "This policy covers a number of articles specifically, including watches, diamonds, clocks, &c., and finally by the use of words 'watchmaker's materials,' such articles as would be comprehended with'n that general descriptive term. In order to determine what was covered, or by the parties intended to be covered, by that general term, it is necessary to inquire somewhere what it means. No index to its meaning is afforded by any other expression contained in the policy. It is therefore an expression which must be classed as ambiguous, and, being so, parol evidence is admissible to explain its meaning. If benzine and kerosene were a part of the watchmaker's materials, they were as much covered by the policy as the springs, hands, dials, tools, glasses or any other article used by him in the conduct of his business. If then, by the stating clause of the policy itself, an article were insured, it surely could not be seriously insisted that the policy should be avoided because of the printed conditions therein afterward appearing, to the effect that the keeping and use of the very article insured in the manner contemplated by the parties should render the policy void.

"One of the elementary rules for the construction of policies of insurance is that, if there be a conflict between the written statement of the subject of insurance and the printed conditions of the policy the former must prevail. A contrary doctrine would present the strange anomaly of an insurance company issuing to another a policy of insurance containing such conditions as that under no circumstances could payment of a loss thereunder be legally demanded. A rule which permitted the printed conditions to control the written statement of the subject upon which the insurance was issued would place the insurance company in the peculiar condition of saying, in effect: 'We issue you this policy. We accept your money in satisfaction of our demand for premiums. We insure your property to be used in your business, but if you use it your policy is void.' A parallel case, and one which adequately expresses the peculiar paradox in the case supposed, is to be found in the sage advice given to her youthful daughter when an affectionate but overcautious mother, in reply to the simple request, 'Mother, may I go out to swim?' said to her:

'Yes, my darling daughter;
Hang your clothes on a hickory limb,
But don't go near the water.'"

Even if the inflammable substances, the keeping and use of which it is claimed avoided the policy, were not of themselves a subject of insurance, yet, if the articles were employed by the assured in the conduct of the particular business, and the use of such articles is a necessary incident to the conduct of such business, the parties will be presumed to have contracted with reference to their use, and at the time the policy was issued the insurer will be presumed to have had in contemplation the use of such substances by the assured when it accepted the risk; and, under such circumstances, will be presumed to have waived the condition under which the use of such substances would render the policy void.

Reliable Approximations versus Guesswork.

Probably no two things can be so near and yet so far apart, can resemble each other so closely and yet be so different in their results and value, than guesswork on the one hand and approximate estimates or calculations upon the other. It is well enough to say that we should be sure of everything as we go along, and there are many who are ready to condemn all approximations as valueless; and yet, as a matter of fact, most of our progress is based upon approximate calculations. The exact certainties are almost entirely behind us. The steamers which ply between ports on opposite sides of the Atlantic, with such precision and regularity that they can be called, and without much stretch of imagination are called, "ferryboats," run entirely upon approximate calculations, and never upon certainties.

The captain or sailing master never knows at sea precisely where the vessel is, and when approaching port she may at any time be 4 or 5 miles north or south of the assumed course, and not as near as that in her calculated position east or west. While it is known that the precise location is uncertain, the limits of the uncertainty are also known, and with that knowledge the ship may be speeded with perfect confidence. The reckoning will certainly bring the ship within the range of recognizable lights or landmarks, and with that certainty and clear weather the ship is driven at full speed. When the fog settles down the approximations, which were practically as good as certainties before, become worthless at once; and then the ship, if run at all, is only run by guesswork, with a good probability of running ashore.

The running of a machine shop is not so very different from this, and all mechanical operations must be based more or less upon approximating calculations; and a necessary qualification of a successful mechanical manager would seem to be the ability to continually make approximations of results that can be relied upon.

We can easily give a couple of instances that will tell better what we mean. We have a job of pattern work that we want to get done—a rather intricate valve with several core boxes—and we happen to know a shop where a good job of pattern work can be depended upon every time. We call around with our drawing, and ask for a price for the patterns; and when we call the next day they tell us that they will do the job for $27. Now, we happen to know a little about such things, and we know that the price is too high; so we tell them to go ahead and do the work by the day. The work is done all right, and the bill for it by the day is $18. Now, if there had happened to be two shops, instead of this one, to which we could have submitted our drawings, and if the second one had made the price $20, they probably would have got the job, and the first certainly would not.

A case came to our knowledge recently in which two shops gave prices upon another little job of pattern work, and the price quoted by the one shop was $22, while the figure of the other party was $55. The shop which quoted the lower price is busy and prosperous, so that the presumption is that it makes safe figures or reliable approximations; and, if so, then the other concern must run by guesswork, and if it should run aground who would wonder at it? We are figuring on another job—this time a machine job—and we go out into the shop and ask Bill Perkins, at the big planer, how long it will take to do all the planing on the frames, and Bill tells us that he can do it all in twenty-seven hours. We are lucky enough to get the job, and Bill's actual time on the planing is twenty-six hours and a half, and we don't put his estimate of the time required in the guesswork category.

Out in the shop, and up in the office or the drawing room, are fellows who can guess, and there are those who can estimate or compute with a tolerably close and reliable approximation. The terror of the concern is usually some old head which carries a great store of experience, by which he can check off and sit down on the work of the youngsters. Elaborate computations on the dimensions and strength of parts, on power developed or other results to be obtained, on costs of materials and labor of construction, may all be knocked over in a minute as impossible by a simple reference to some precedent of a score of years ago; and then a little investigation may show that some factor has been omitted in the operation, and when that is applied wisdom and experience will accept the result.

The checking ability is one of the most important things in mechanical matters. Though it masquerade as guesswork, the result of it should be the measure of its worth, and appreciation belongs as much to it as to any other good work. The quick approximation by rough and ready methods is continually correcting the most careful and intricate calculations, and the ability to accomplish a result so valuable is proof enough that there is a sound basis of sure and accurate knowledge beneath it. To become expert in it we must have a wide store of data, chiefly or largely in the memory, and a trained faculty of quick generalization. The methods and appliances that can aid us in these approximations are never to be despised. The much abused slide rule is one of the most reliable guides in the world; and as it is quick in its conclusions, so it, in expert hands, may largely increase the amount of work accomplished. It has no more to do with guesswork than has the finest micrometer.—*American Machinist.*

Rope Driving Practice.

In one respect English practice in rope driving is in advance of other practice, and that is in the use of cotton ropes. A cotton rope is not to be named in the same day as a rope of hemp. The fibre of hemp, especially of manilla, is a rough and coarsely uneven fibre, and a manilla rope cannot be made solid. It may be made harsh and unyielding, but it is impossible to make a rope of hemp to compare with one of cotton. In a cotton rope there are sixty or eighty thousand separate threads, usually of No. 32 yarn. By No. 32 is meant that a single thread of the yarn will require a length of 32 hanks to weigh a pound, a hank being 840 yards. In other words, the ropes of a 1,000 horse power engine will consume from 70,000 to 100,000 miles of yarn.

The separate yarns are divided between the three strands of which the rope is built up, three being the recognized best number of strands; and in each strand of the best made rope there is a division of the strand into many smaller strands, so arranged that if a length of rope strand be taken of, say, 3 inches it can be peeled off in successive layers; and in this way, when a rope wears, it is only one set of threads. Every thread in the rope maintains its proper distance from the surface, so that there is no general destruction of a rope by wear.

With such exactly built ropes there is practically an absolute uniformity of size and hardness, and this is different from what obtains with manilla. Consequently, every rope in a set of cotton ropes sinks equally deep in its groove.

The raw material of the ropes is almost invariably American or Egyptian cotton. Egyptian has rather taken the lead, but it is said there is practically no difference between the two.

The diameter of the smallest pulley is usually taken as thirty diameters of rope as a minimum; but it must be remembered that if a rope has to run over a guide pulley and to take a reverse curvature in doing so it will suffer far more than in bending in one direction only. From some recent evidence brought to my notice it would appear that as much or more harm would be done to a rope if led in an S curve around a pair of 4 foot pulleys, as if led round one 2 foot pulley, so destructive is the effect of back and forward bending as compared with bending in one direction only. The effect is to reduce the middle of the rope to dust, the outside remaining apparently sound.

It is a great mistake to apply much composition to ropes. Only enough should be put on to prevent the surface of the rope from fluffing up. A composition sometimes used is plumbago and molasses; but this is not to give adhesion. Ropes do not slip, for they gain grip by reason of the wedge action of the grooves in which they work. The angle between the sides of the grooves is variously 40° to 45°, and the bottom of the groove is usually semicircular in English practice, with a ¼ inch radius. Certain continental practice favors deeper grooves with flat bottoms; but so long as the ropes do not touch the bottom of the grooves this is a point of no importance. It is important that the grooves of the driver and driven pulley should be exactly opposite. Possibly it is lack of this that often causes ropes to revolve round their own axes, in place of bedding to shape in the groove. A revolving rope is thus squeezed continuously on different sides, and cannot become consolidated. It is exposed to constant internal friction, and will be less durable than a bedded rope, which, under fair conditions, may last a dozen years, or even more.

When the continuous rope is employed, not only is it subject to numerous double bends, but it never enters or leaves a groove properly, for the grooves are never opposite to each other, but simply are a half groove removed laterally, while the final pass of the rope has to be taken from the extreme left of one pulley to the extreme right of the other pulley to bring the rope back again to No. 1 groove after its circuit of reduplication.

Another advantage of the system of independent ropes is that, in event of failure of one rope, it first shows signs of weakness, and stretches somewhat so as to take a less share of the load. It can be removed, the remainder of the ropes being fully able to run without it, and a fresh rope can be put on at leisure. This is not the case with one long, reduplicated single rope, which is no joke to replace if broken and unwound, and is far more liable to cause an accident if it should break, as well as being far more liable to break, for it cannot refuse, by stretching, to perform its full duty at every part of its length.

In the early days of rope driving their diameter was 2 inches, but at the present time they are only 1½ and 1¾ inches. Thinner ropes, of course, work better than thick, for they suffer less by bending. Thick ropes have the advantage of enabling narrower pulleys to be employed, and this may be an advantage when it is desired to keep the span of a shaft small between the bearings. The various proportions of rope diameter, speed and pulley diameter are all a matter of compromise, like so much in mechanical engineering.

The necessity of using cotton ropes, or ropes of a uniform texture, is important, in view of the fact that ropes of different diameters will sink to different depths in the grooves; and if this occurs it is obvious that one rope must perform a greater share of work than another, and this must cause greater friction, for one or both of the ropes must either slip or stretch.

With well designed rope gears it is not likely that there is an excess of power wasted beyond what is wasted by belts, but rope driving has been accompanied by large and heavy fly rims, and it is the friction of the engine shaft carrying these heavy wheels that has, perhaps, led up to the idea.

Finally, in regard to velocity, there is no necessity to run ropes at high speed, for they are at their maximum power at about 80 feet velocity per second, and even at 60 feet per second they are not far behind. It is the rapid increase of the stress due to centrifugal force that makes a rope so nearly as efficient at 60 feet as at 80 feet. Beyond 80 feet the centrifugal tension increases faster than the power capacity, and considerable endeavor should be made to keep speeds below 100 feet velocity. Speeds of 7,000 feet per minute are not unknown, but they are to be avoided if possible, for they are only economically possible when high unit stress is allowed in the ropes; otherwise the proportion of centrifugal stress is too great as compared with the net working stress, and a high rope stress cannot be accompanied by longevity. In temporary installations the stress in a rope may be very much increased beyond what is proper for a factory expected to run a dozen years on one set of ropes. Each rope in a set may be very well allowed to turn 40 to 50 horse power for durable and permanent work, and considerably more for temporary work.—*W. H. Booth in Am. Machinist.*

Speed Indicators for Shafting.

The simple speed counter is a necessity in most shops, and one is now found in the tool chest of nearly every machinist and millwright. The great objection to this device, however, is that one must have access to the end of the shaft whose speed is desired, and this is very often an impossibility. The only apparatus that is now on the market that will give the speed of a shaft without access to the end and at the same time give the instantaneous value of the speed is the tachometer, but it is an expensive instrument and is not largely used.

We recently saw a sketch of a simple tachometer for vertical shafting. It may be easily constructed by any mechanic, as it consists of only three parts, a collar being clamped to the shaft, and a plumb-bob being hung from one side of the collar. Close to the shaft a quadrant is placed, and upon it are marked divisions corresponding to a considerable range of speed. When running a glance is sufficient to determine the exact speed at that instant.

It at once occurred to us that this device might be easily modified so as to be applicable to a horizontal shaft, and if any of our readers have plans to acccomplish such a result we will be glad to hear from them.—*Exchange.*

The tension or degree with which it grips pulley or hangs to its surface determines the amount of pull or driving power of the belt, hence the belt should touch every square inch of the surface of the pulley with which it comes in contact. In order to do this the belt should be very pliable and flexible.

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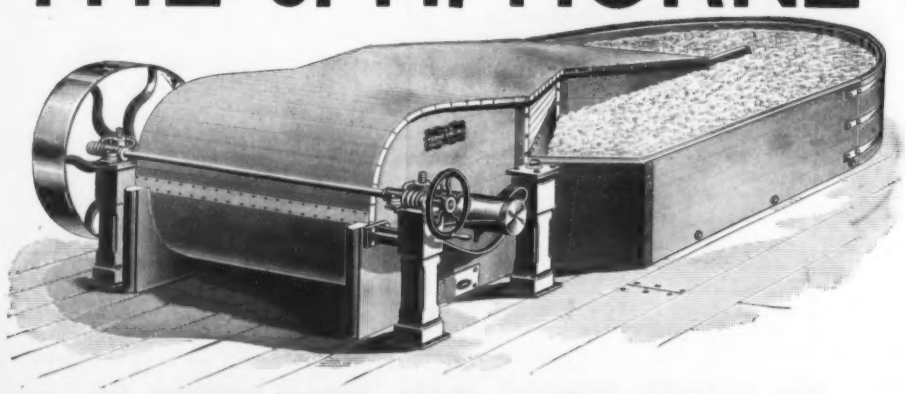

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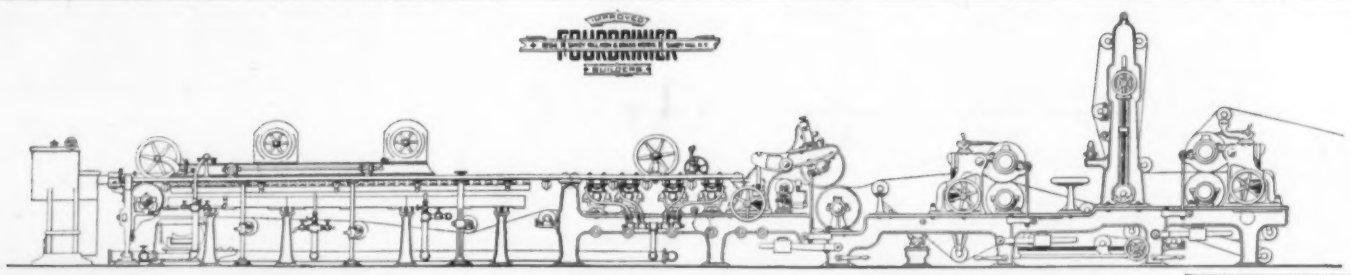

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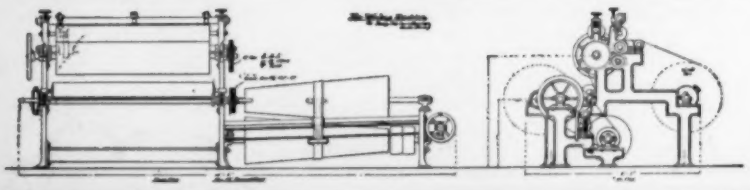

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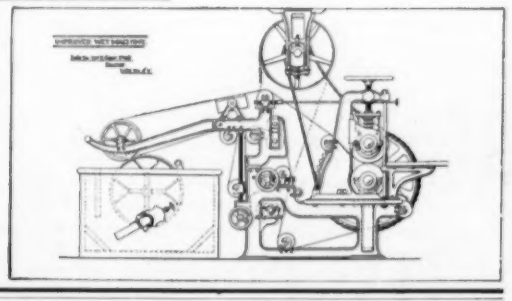

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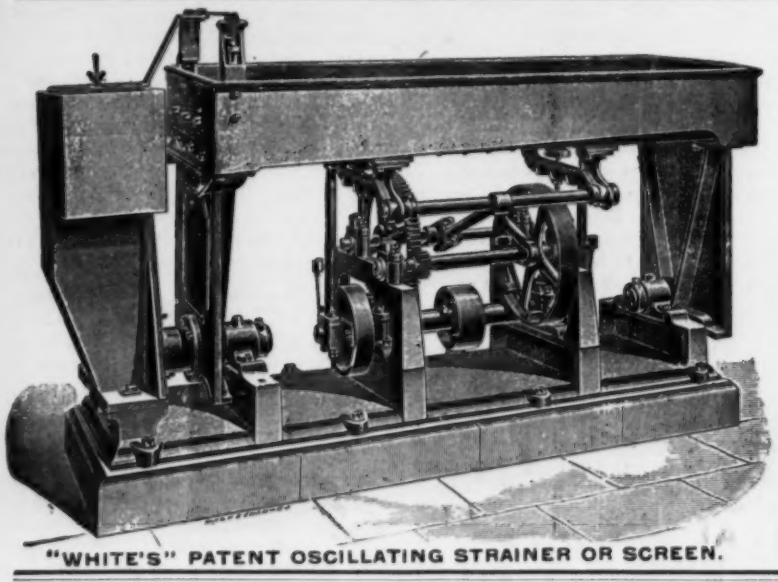

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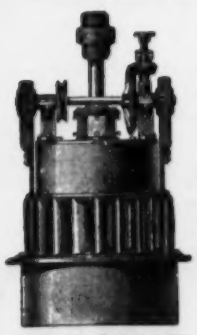

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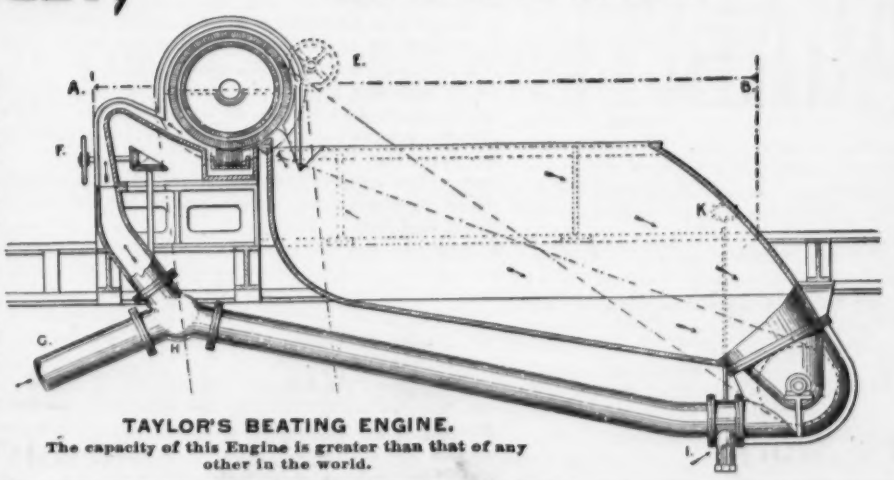

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Nov. 8, 1892,	No. 485,809	June 11, 1895,	No. 540,916

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PARTIES contemplating building or making any changes in their Sulphite mills will find it greatly to their advantage to consult with us. We take pleasure in referring to the following successful Sulphite manufacturers, nearly all of whom we have furnished with entire plans for their mills, as well as machinery, &c., and with all of whom we have placed the Curtis & Jones Digesters:

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Glen Manufacturing Co., Berlin, N. H.,
30 Ton Plant. Five C. & J. Digesters.

Katahdin Pulp and Paper Co., Lincoln, Me.,
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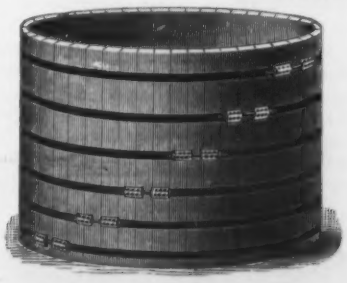

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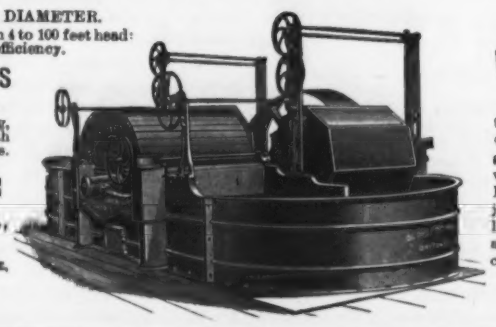

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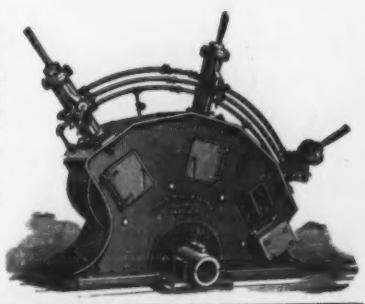

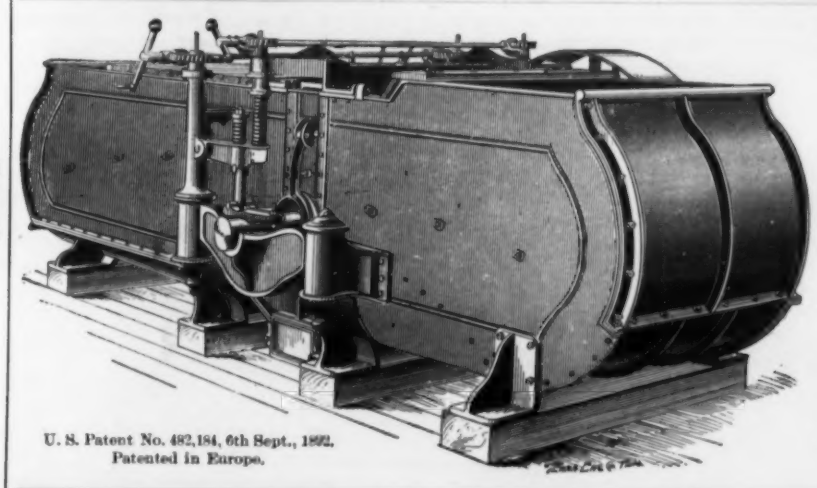

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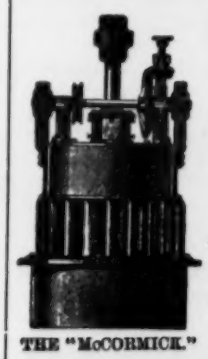

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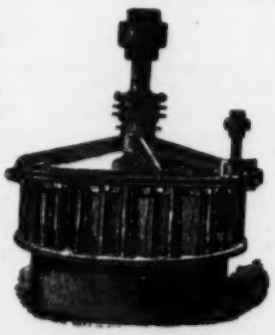

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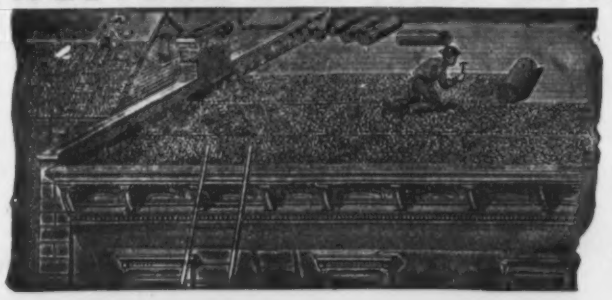

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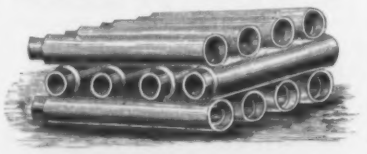


Mill of the Rumford Falls Sulphite Company.

The new mill of the Rumford Falls Sulphite Company at Rumford Falls, Me., now in successful operation, adds another to the list of fine mills in this country, and it is probably the best equipped and situated of any of them. It is built entirely of brick, stone and iron, excepting the roofs and floors, and these are of heavy mill construction.

Beginning with the acid plant the railway tracks run direct to the door, and are on a level with the floor of the lime storage room, the sulphur storage being below the lime, and the whole of the lime storage and mixing being about 50 feet above the acid storage floor, so that every particle of the acid runs by gravity, thus saving all pumping.

Passing through a covered bridge from the lime storage room the visitor enters the lime mixing room, in which are the slacking, mixing and storage tanks; also three of the Deane Steam Pump Company's exhausts, which were designed especially for this plant, and were the combined efforts of the manufacturer's skill and the practical experience of C. H. Sawyer, who had charge during the whole of the building and starting of this plant.

Below the sulphur storage department and between that and the absorbing room are the burning ovens built by the Portland Company. There are nine of these, in sets of three to a system, and back of them are the stands of pipe for cooling the gases. All of this machinery has plenty of room and all of the modern devices for keeping it in the best of order.

Passing through into the next room the visitor will find there the absorbing tanks, nine sets, three in a system, one above the other, equipped with agitators and driven by power with tight and loose pulleys, so that any one of them can be stopped without interfering with the remainder of the machinery; in fact, all of the machinery in the mill is in the same shape, and the different departments are all driven by separate wheels and are not dependent on each other for power.

Passing from the absorbing room the acid flows to eight large storage tanks, after flowing through two settling tanks to take out any lime there may be in it.

This plant has been run only to half of its capacity and has been making acid for 30 tons per day.

Beginning again on the same level where the start was made, but on the lower side, the filter room is reached. Here may be found six of the Cumberland Manufacturing Company's largest Warren filters, supplying a fine quality of water, which is very necessary for the high grade of stock made here.

Lower down on the canal and on the upper level we come to the wood room, where logs, taken either from the canal or the cars, pass through eight of the Holyoke Machine Company's barkers to one of the same company's largest sized chippers, the chips being then sifted from the dust and passed by a fan to the chip bin over the digesters. The refuse and sawdust are carried by Garland conveyors to the fire room, where there are six 100 horse power boilers connected with an immense brick stack 165 feet high and 6 feet in diameter. One thing which this plant will never want is steam.

Next to the wood room is the digester house, built of steel skeleton, filled with brick, and on top is the chip bin, holding chips enough for eight cookings. The digesters are each 14 feet in diameter by 34 feet high, and were built by the Bath Iron Works Company, and one of the good things which can be said for them is that since starting and up to the present time there has not been a sign of a leak in them. The acid is pumped into the digesters direct from the storage tanks and goes into the bottom.

Next come the blow pits, four large, square tanks equipped with spray pipes and all kinds of machinery for washing the pulp and getting it out of the pits into four large revolving screens, to take out any coarse uncooked particles which may be in the pulp before it goes to the washing engines, situated on the floor of the wet machine room. This room contains, besides the engines, eighteen Gotham screens, in three rows of six each, and three wet machines, from which the pulp is taken, loaded on trucks and wheeled directly into cars standing on a side track 50 feet below the track from which the logs were taken.

Everything seen in this mill is on a descending scale, except the quality of the mill and product. All shafting, &c., was furnished by the American Tool and Machine Company, and in building and equipment no money has been spared to make this mill one of the very best.

The mill was designed by A. B. Tower & Co., and their engineer, H. L. Ferguson, has superintended the entire construction, the work being done by Greenleaf & Merrill, of Auburn. The mill was started in 1892, and after about a year's work, in which the foundation, headgates, &c., were completed, the depression of 1893 coming on, work was suspended until October of 1894, since when the work has been steadily pushed, and to-day the mill is running in good shape.

Conducting Tests.

By W. H. Wakeman.

To a disinterested party it is often amusing to hear the reports of tests conducted to determine certain things and to note the careless way in which such tests were carried on and reported. The most common case of this kind is where it is desirable to know which of two or three kinds of coal is the most economical to use to run a certain plant. Many times when a test of this kind is to be conducted all that is done is to note the number of tons of one kind of coal that are required to run the plant a week and then try another kind for another week. The engineer may protest that such a trial is not fair, but the proprietor says that he does not care for the fine points, as all that he wants to know is which kind will run the plant a week for the least number of dollars. It is quite possible that the load is not the same in both cases, the feed water may be colder at one time than at another, and unequal amounts of live steam may be used, but it is all the same to the fellow who sits in the office and sends forth ultimatums. Such a course is not only unfair to the coal dealer, but unsatisfactory to the steam user, or would be if he cared to investigate the matter. Even where an engine is running with apparently the same load from day to day, it is quite possible that it will not be the same for two days in succession.

Again, if the feed water is not at the same temperature during both weeks or days it will affect the result, and the manner in which the coal is handled will also make quite a difference.

A certain steam user became dissatisfied with the coal that he had been using and wanted to make a change if he could do so for the better. He procured a water meter and connected the water pipes to it so that all water going to the boiler must go through it. This constituted the sole outfit for making a test that was to determine which coal was best and cheapest, where several thousand dollars were insolved.

The number of cubic feet of water indicated on the dial and the number of pounds of coal brought on to the premises were all of the quantities noted, and when the pounds of water indicated by the meter were divided by the number of pounds of coal delivered the quotient was the fatal number that decided who was to furnish the coal.

There is but one thing about such a test to recommend it, and that is its great simplicity, for it excels all others in this respect; but here its superiority ends. Part of the steam was used for running an engine, a part for running pumps, and the remainder for heating vats of water by blowing it directly into them and in keeping dry rooms at a high temperature by means of the ordinary coils and banks of pipe.

In the first three cases mentioned the steam was entirely lost, but in the latter the water of condensation was returned to the boilers at a high temperature. If large quantities of steam were used in the vats the temperature of the feed water would be reduced, for it was heated by the exhaust from the engine, and the load was light at times. No account was made of the quality of the steam, nor was the amount of coal wasted by passing through the grates unburnt taken into consideration; neither was the moisture in the coal accounted for. Such tests are not very satisfactory to anyone who has given the subject the attention that it deserves.

Trusting to a water meter is bad enough, but the following plan is much worse.

A certain engineer calculated the amount of water that his boiler would contain, by the difference between a low water mark on his gauge glass and a high water mark on the same glass, and even went so far as to measure the water to prove the calculation, taking the water when cold and pouring it into a cold boiler. It will be noted that when cold water is running into a boiler the water in the glass does not rise steadily, but goes up by irregular jerks, unless the glass is coated with something to prevent it.

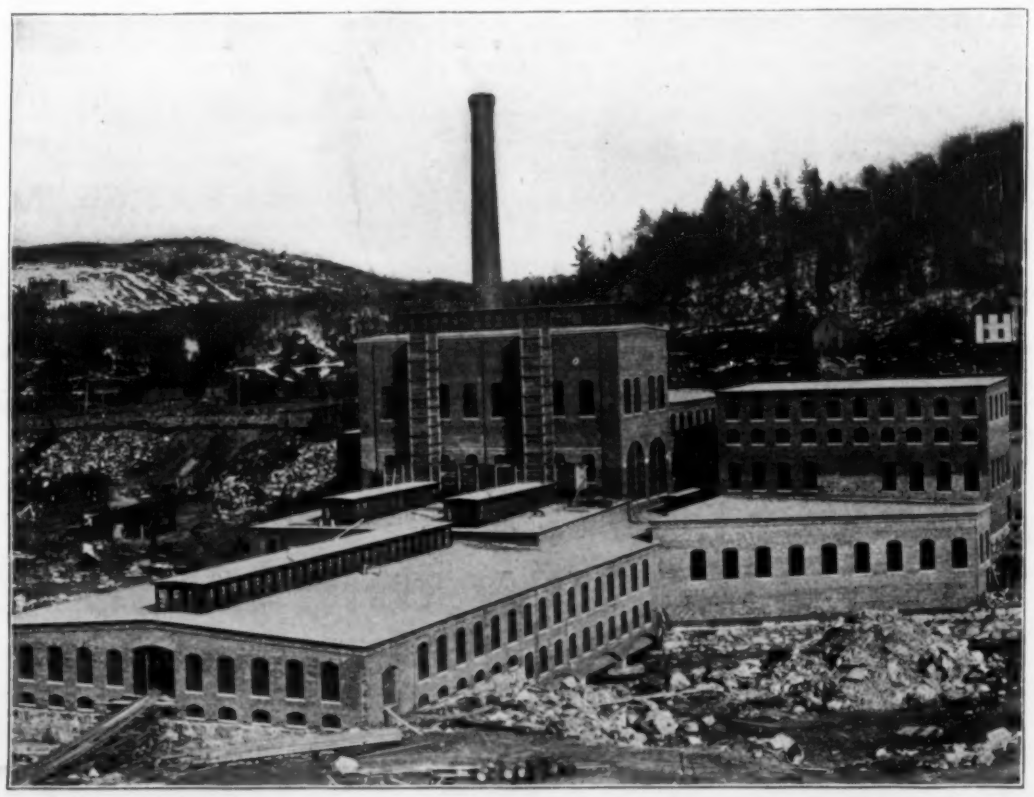
This shows that it is difficult to locate the water line with accuracy, and a difference of even an eighth of an inch will affect the results seriously. After this engineer had located these lines for measurement he fired up his boiler with the water line at the high water mark, then let it run until it was evaporated down to the low water mark, and charged the number of gallons that the difference called for.

In addition to the difficulty of locating the exact water line in the glass it will be noted that there is a difference in the bulk of cold and hot water, and consequently a given space will not contain as much weight of hot water as it will of cold, even when the hot water is under pressure, for water is not compressible to a degree that will make up for the difference. Is water compressible?

I once referred this question to a man who is well educated as a mechanical engineer and his reply was to the effect that when water was compressed into a solid body it could be compressed no more, but so long as it remained a liquid there is a chance to get the particles a little closer together. I thought the reply well worthy of consideration. It is quite evident that such a boiler test as the above is simply worthless.

While conversing with a man who has studied up something of the theory of the action of water under pressure, &c., but who was not what may properly be called a practical man, the subject of conducting boiler tests was mentioned, and he expressed the idea that it was a good plan to take a week for the purpose in order to cover all points.

These particular boilers were fitted with patent setting, consisting in part of pipes located along the side walls of the furnaces, and these pipes must be blown out daily while in use in order to prevent the accumulation of scale. I asked him how he would manage that part of it and his reply was that it was an easy matter to calculate the amount of water that would flow through a pipe of given size, during a given time under a known pressure.



Mill of the Rumford Falls Sulphite Company, Rumford Falls, Me.

Now, this setting was fitted with the slow opening gate valves requiring nine turns of the wheel to open or shut them, and they were so large that they could be left open but a few seconds, as the pressure was high. It required fully as much time to open and shut these valves as could be allowed for leaving them wide open; consequently I doubt very much if any man could tell how much water was blown out unless he caught and measured it.

A certain engineer in charge of a medium sized engine began to experiment with cylinder oil, and he found it possible to get along with one pint less per day than he had been using, but in the meantime the fireman had been experimenting with coal, and repeated trials convinced him that while one pint of oil was saved about one half ton more of coal was required to drive the machinery. He had no way of determining the exact amount of power developed, it is true; but the difference in coal was great, and repeated trials all gave the same general result, which entitles the report to at least some consideration.

In another case an engineer had been running with no back pressure above the atmosphere on his engine, but changes were made which called for a back pressure valve on the exhaust pipe. This was weighted so light that the additional back pressure could not have exceeded 2 pounds per square inch, and yet he imagined that it brought great additional strain on the working parts of his engine. This is ludicrous, not only on account of the slight back pressure added, but because the addition of back pressure does not tend to increase the strain on the working parts. It is true that to increase the back pressure has the same effect on the consumption of steam as if more machines were added in the mill or factory, but a little consideration of the way which back pressure acts on the piston, or in other words of the way that this load is applied, will make the matter plain.

One of the most simple things that I have ever heard of being discussed by working engineers is the following question:

Suppose that you have a high pressure on your boiler, and start the direct acting feed pump, letting it run long enough to get settled down to a uniform speed, then note the number of strokes per minute. If the boiler pressure falls, will the speed of the pump be increased or decreased? There was a difference of opinion, which could only be explained by concluding that if the speakers had ever tried it the experiments must have been performed under different conditions.

I was asked to conduct a test to decide the matter. A pump was taken that was fitted with a sight feed lubricator, so that the supply of oil might be uniform; also that the rate of feed could be accurately noted. The water was supplied under pressure from the city mains, and a gauge was connected on each side of the pump, so that both supply and delivery pressure could be observed. At the beginning of the test the steam pressure was 58 pounds, pressure in delivery pipe 61 pounds, pressure in supply pipe 21 pounds, number of strokes per minute 32, and throughout both tests one drop, approximately, of cylinder oil ascended per minute, the variation being but a few seconds, and the pressure in delivery pipe exceeded the steam pressure by from 1 to 2 pounds, according to speed of pumps. The pressure in supply pipe varied from 21 to 18 pounds at different times during the test.

The fire was banked, and when the pressure had fallen to 50 pounds the pump was making 34 strokes and observations were made for each fall of 5 pounds in pressure until it was down to 20.

At 45 the strokes were 34, at 40 the number had fallen to 33, and at 35 they were increased to 38. At 30 and 25 they were 41, and at 20, 42 were noted.

The pressure was then raised to 58 pounds again, and observations made for increase of pressure the same as for the falling. When it had reached 58 the pump was making thirty-one strokes per minute. From this it will be seen that the stroke increased with a falling steam pressure. The experiment was repeated under the same conditions except that the pump took its supply from a tank, the lift being 8 inches. At the highest steam pressure the speed was thirty-five strokes per minute and when it had been reduced to 20 the pump was making but ten strokes.

When the steam pressure was again raised the pump made thirty-three strokes per minute. Under these conditions the number of strokes was decreased with a falling steam pressure.

One reason that I have for giving these figures is to show that if a test is to be conducted at all it should be done carefully and every detail noted, even in a case of small importance like this, as otherwise the results are of no value.

There are several matters concerning the lubrication of engine bearings and of shafting that might be mentioned, but only one will be brought up, as it is of common occurrence. Perhaps the shafting in a shop has been run with oil for several years, but suddenly a spirit of reform strikes the superintendent, and grease must be used instead. Now, I would not wholly condemn the use of grease, for I often use it myself, and believe it to be a good thing, but it should be used and not abused. An oil agent, who also sold grease and lubricating compounds, called on a mill owner, who

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had been one of his customers, to as certain if more shafting grease was wanted, and was informed that some of another kind had been purchased. He naturally asked for the change, was told that another party sold grease cheaper than he could, promptly denied the allegation, and stated that he could sell the article at all prices down to 3 cents per pound. It may be unnecessary to add that few mill owners who have given the matter any consideration will expect to get a 10 cent grease for 5 cents per pound, and those who do will find themselves mistaken.

The cheaper grades of grease, of the heavier kinds, often become dry and hard in the boxes, and will not run down on to the shaft until it becomes quite warm; and furthermore, because a shaft does not heat is not positive evidence that it is running with the least amount of friction. Well, our superintendent orders some cheap grease and orders it used instead of oil. The result is that the expense is less than for oil, and the oiler has time to do other work; but this test is very incomplete and may be misleading, for it is quite possible that after the grease has been used for several months the shafting will require more power to turn it, and the cost of this may exceed the entire cost of the oil used, plus the wages of the oiler.

Let us not be hasty in arriving at conclusions, but make all of our tests carefully and be sure that every point is covered.—*Machinery.*

Acetylene for Steam Engines.

The use of acetylene for the production of power has been suggested several times since it has become a commercial product; but Dr. A. Frank, of Charlottenburg, has stated its advantages and disadvantages for the purpose very explicitly in the *Journal für Gasbeleuchtung*. Calcium carbide capable of yielding 9 per cent. of the theoretical amount of acetylene which the pure carbide should give is now obtainable from the works of Bitterfield; and a very good article is also now made at Neuhausen. Dr. Frank suggests that the carbide furnishes an excellent means of transporting power (derived from water, for instance) to a distance from the source. He considers Herr Ihering's proposal to compress acetylene to a liquid at a pressure of fifty atmospheres for transportation a less practicable one than that of conveying the calcium carbide itself. He bases this conclusion on the following figures: 64 parts (by weight) of calcium carbide on addition of water should produce 26 parts of acetylene; or 100 pounds of calcium carbide should yield 40.62 pounds of acetylene = 559 cubic feet at atmospheric pressure. The liquefied compressed acetylene weighs 28.15 pounds per cubic foot, or 40.62 pounds occupies 1.443 cubic feet; while the calcium carbide necessary to produce this quantity will have a volume of only 0.722 cubic foot, taking its specific gravity of 2 22 The volume of the calcium carbide is therefore about half that of the acetylene gas it would yield, when the latter is stored as a liquid under a pressure of 50 atmospheres. The space occupied by the walls of the containing vessel is, moreover, unconsidered in this comparison of volume. But the commercial production of acetylene from the carbide only gives 90 per cent. of the theoretical yield, and therefore 111 pounds of carbide would be required to produce the 40.62 pounds of acetylene, and a space of 0.800 cubic foot would be occupied by it. The calcium carbide may be run into cubical or other rectangular blocks, and these may be put into light tins for protection from the air and moisture. The liquefied acetylene, on account of the weight and shape of the containing vessel, needs more space than the carbide for its storage.

The liberation of the acetylene from the roughly powdered carbide may be effected with simple apparatus. It may be observed that recent experiments show that the toxic properties of acetylene have been much overrated. Small mammals can remain for half an hour in an atmosphere containing 4 per cent. of acetylene without perceptibly suffering inconvenience. Slight leakages from the generating apparatus need not therefore be regarded as dangerous to the workmen. If a comparison of the weight and volume of coal, liquefied acetylene, and calcium carbide needed to provide power for a 1,000 horse marine engine for twenty-five days is made, the following results:

1. Coal.—The 600,000 horse power hours will need, at 1.543 pounds per horse power hour, 413 tons of coal, occupying, when well stowed, a space of 14,800 to 15,200 cubic feet.

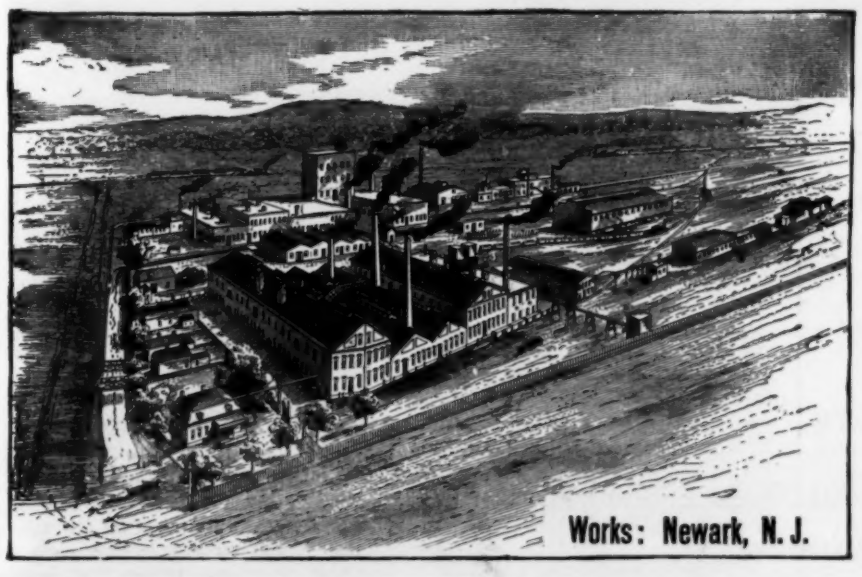
2. Liquid Acetylene.—According to Ihering and Slaby's figures, 0.4 pound nearly is required per horse power hour with large engines, or 106 tons for 600,000 horse power hours. A specific gravity of 0.451 at 0° C. corresponds to 364 at 35.8° C. (about the temperature of the ship's hold); and therefore 106 tons would require vessels of 9,500 to 10,600 cubic feet capacity, and these to be absolutely safe at a pressure of upward of 50 atmospheres.

3. Calcium Carbide.—The corresponding amount of 90 per cent. carbide would be 295 tons, which, at a specific gravity of 2.22, would occupy a space of 4,625 cubic feet; or, allowing for the tins in which the blocks are stored, about 5,300 cubic feet.

Therefore to supply power for 25 days to a 1,000 horse power engine requires: Good coal, 413 tons, having a volume of 14,800 cubic feet; compressed acetylene, 106 tons, having a volume of 9,890 cubic feet; or calcium carbide, 295 tons, having a volume of 4,770 cubic feet. Moreover, coal needs a boiler, which is expensive both in first cost and in maintenance; while liquid acetylene requires large storage vessels, whereas simple apparatus only is needed with the carbide. To one unversed in shipbuilding it seems that, in the endeavor to find a very concentrated form of fuel to fit war vessels for long journeys, calcium carbide must attract attention. Stationary and locomotive engines on land might also use it, and be independent of foreign petroleum, which has lately also been used for ships' boilers. —*Journal of Gas Lighting.*

Stopping Machinery by Electricity.

The sad loss of life and limb, which occurs much too often, should, if M. E. Lucien Meyer's invention is adopted, be minimized. He describes his contrivance as one that is capable of bringing to immediate standstill all the machines in a large factory at the moment a cry gives warning that some one has been caught by clothing, hair or limb, and is being dragged between rollers or cogs. A number of electro-magnets are brought into action by the pressure of any of a series of contact buttons fixed up at very conspicuous points in a shop, and these control valves which shut off the motive power, whether steam, air, water or electricity. At the same instant a brake of great effectiveness is brought against the periphery of the fly wheels. At a recent trial a 20 horse power engine working at ninety revolutions under a pressure of 7 kilograms, was stopped by the apparatus in two-thirds of a second. Although the starting and keeping in motion of machinery may be taken as all-important objects from an engineer's point of view, there is a very decided advantage to be derived from being able to stop it, if necessary, on the instant. —*London Machinery Market.*



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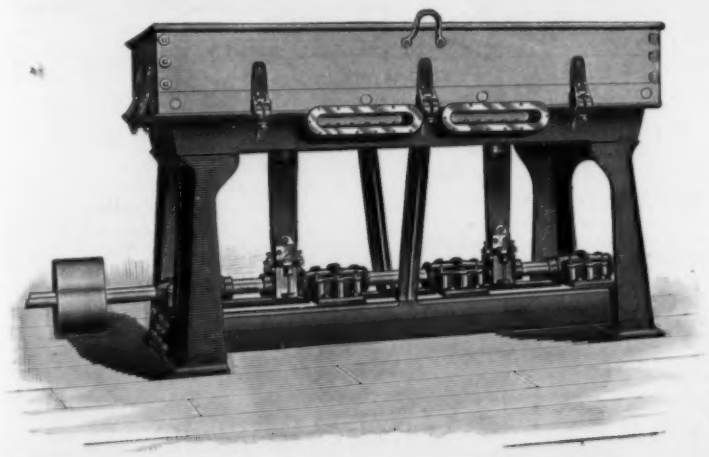

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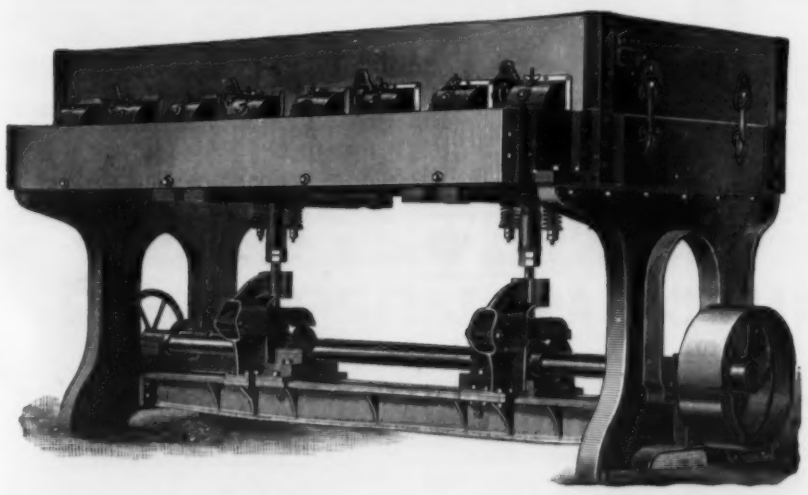

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Plates are sure to last longer, and but two-thirds the number being necessary. No waste of stock when washing up.
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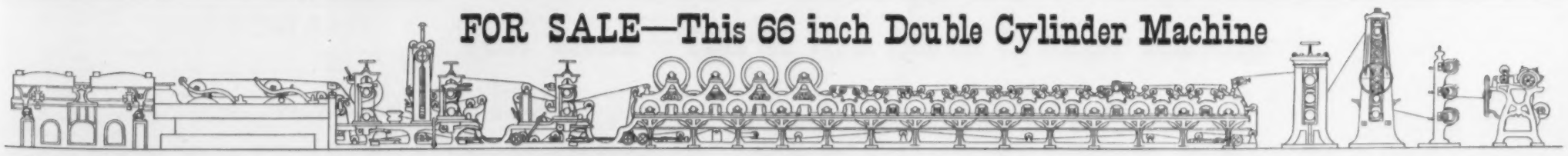

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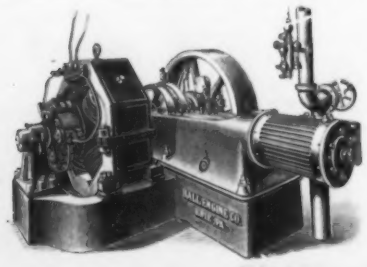

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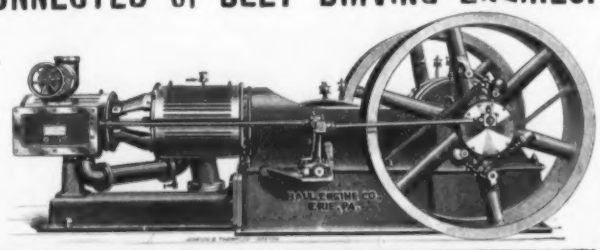

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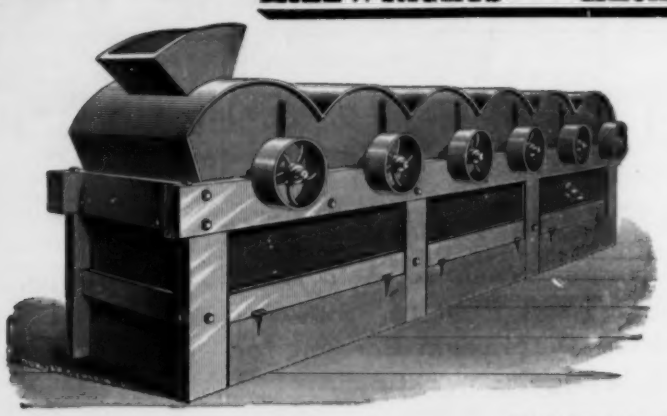

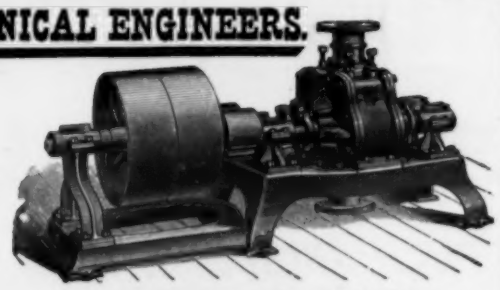

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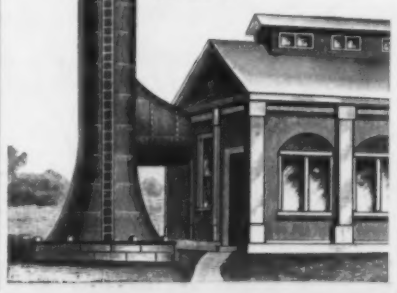

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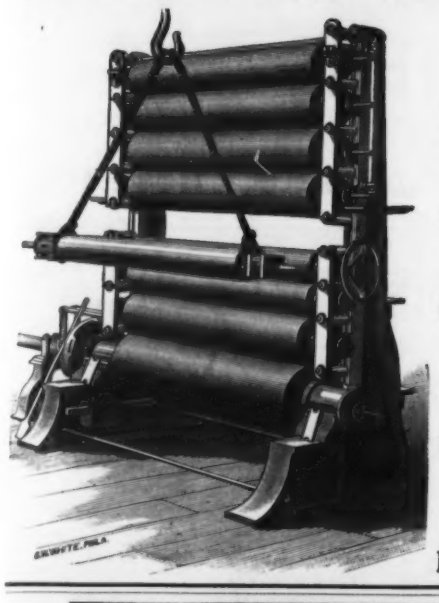

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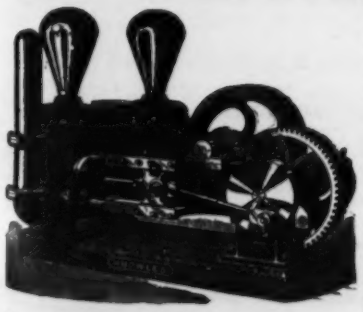

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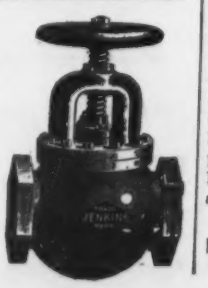

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Mr. Hofmann returned to Germany more than eighteen years ago and settled in Berlin. He established *The Papier Zeitung*, and in due course, about seven years ago, began to write his second and latest Treatise. Thus far he has printed and published probably 1,200 pages in German, and in parts of forty-eight pages, including cover, profusely illustrated by wood cuts. When finished the book will consist of about 1,600 pages (pages size same as in first book), illustrated by 1,500 wood cuts.

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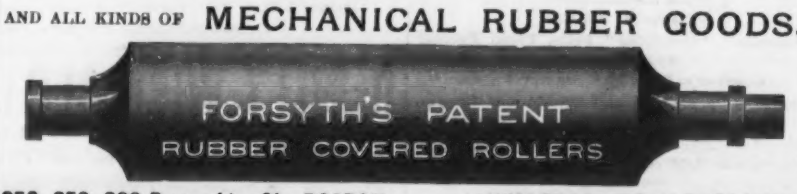

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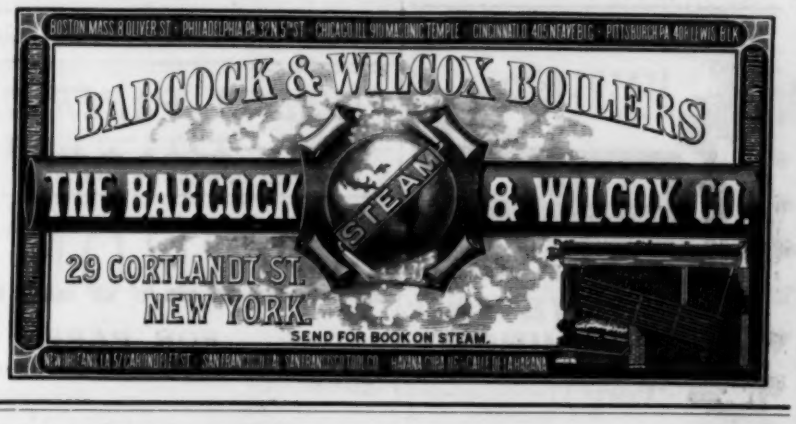
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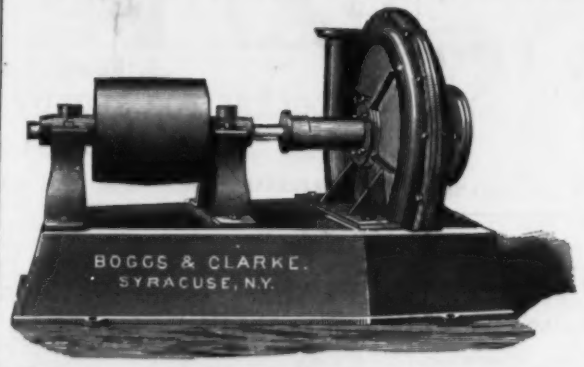

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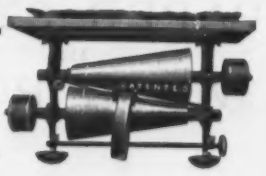

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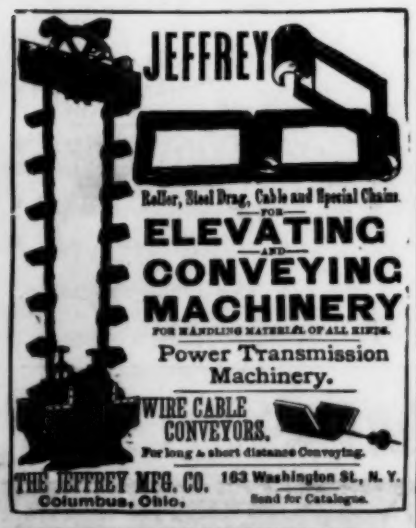

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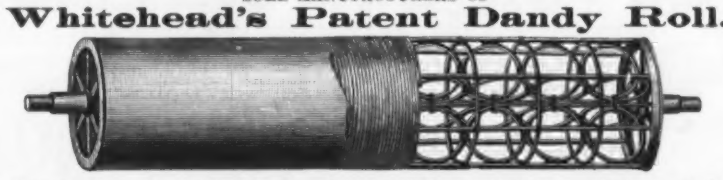

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